Spolia Mentawiensia: Blattidæ. By **R. Hanitsch,** Ph. D., formerly Director, Raffles Museum, Straits Settlements. With an Introduction by C. Boden Kloss, Director of Museums, Straits Settlements and Federated Malay States.

(Plates I—II)

CONTENTS

I. INTRODUCTION

The Mentawi Group, to the west of Sumatra, consists of the islands of Siberut, Sipora, and North and South Pagi. The first and northernmost, roughly quadrilateral, about sixty geographical miles long and twenty-five wide, is larger than the other three (which are fairly equal in size) put together: there are also a number of small islands near their shores. The group lies parallel to the coast of Sumatra and about fifty to eighty miles distant: its northern extremity is Lat. 1° South.

Sipora Island had been visited by Dr. E. Modigliani in 1892 and Herr Alfred Maass in 1897 and the Pagi Islands by Dr. W. L. Abbott and myself in 1902, but Siberut Island had never been worked by naturalists until I landed there in September 1924 accompanied by Mr. N. Smedley, Assistant Curator of the Raffles Museum, Singapore; Dr. H. H. Karny, Entomologist of the Zoological Museum, Buitenzorg, Java; and a party of native assistants. I had several times since the visit to the Pagi Islands applied to the Government of Netherlands India for permission to visit Siberut, but sanction had been withheld on account of the attitude of the Indonesian inhabitants, the last in the group to come under administration. At length in 1923, however, the Government was able to agree to a visit, and when the time came a year later to make it, gave assistance, as usual, in a most generous manner. A month was spent on Siberut (Sept.—Oct.) and another on Sipora (Oct.—Nov.), and besides obtaining much zoological material, both vertebrate and invertebrate, collections of plants and ethnographical objects were made as well. Reports on all these, as prepared, are being published under the general title "Spolia Mentawiensia". The following have already appeared:—

i. The Flora of the Mentawi Islands. H. N. Ridley, Kew Bulletin, 1926, pp. 56—94.

ii. Birds. F. N. Chasen and C. Boden Kloss, Ibis, 1926, pp. 269—306, pl. iii and map.

iii. Three new birds from the Mentawi Islands. J. H. Riley, Proc. Biol. Soc. Washington, XL, 1927, pp. 95—96.

iv. Reptiles and Amphibians. Malcolm A. Smith, Ann. Mag. Nat. Hist. (9) 1926, xviii, pp. 76—81.

v. Zoraptera. H. H. Karny, Treubia, ix, 1926, pp. 1—5, pl. i, text-figs. 1—3.

vi. Dragonflies. F. F. Laidlaw, Journ. Malayan Branch Roy. Asiat. Soc. iv, 1926, pp. 214—233, figs. 1—5.

vii. Dermaptera. A. Borelli, *t.c.s.* pp. 384—391, figs. 1, 2.

viii. Fulgaroidea, Homoptera. F. Muir, *t.c.s.* pp. 392—412, figs. 1—34

ix. Homoptera—Fulgoroidea. C. F. Baker, Philippine Journ. Sci. xxxii, 1927, pp. 391—410, pl. i, text-figs. 1—13.

x. Mantidæ. F. Werner, Treubia, ix, 1927, pp. 413—419.

xi. Mammals. F. N. Chasen and C. Boden Kloss, Proceedings of the Zoological Society of London, 1927, pp. 797—840, pls. i—v and Map.

xii. Acridiidæ (Orthoptera) C. Willemse, Journ. Malayan Br., Roy. Asiat. Soc., vi, 1928, pp. 1—12, pls. i—iii and text-figure.

xiii. Membracidæ, Homoptera. W. D. Funkhouser, *t.c.s.*, pp. 13, 14.

xiv. Pterydophyta. R. E. Holttum, *t.c.s.*, pp. 14—23, pl. iv.

xv. Musci. H. N. Dixon, *t.c.s.*, pp. 23, 24.

Dr. H. H. Karny has also published an illustrated popular account of the visit:—Auf den Glücksinseln (mit 60 Abbildungen): Natur, xvii, 1926, pp. 9—16, 28—39, 60—67, 80—89, 102—110. (Leipsig).

The group is forested all over, and the collections were made at various localities near the Government stations of Siberut, in the island of that name, and Sioban in Sipora: they came from the sea-shore, low-lying ground, the swamps, cultivated areas, and from such hills are were accessible.

The islands are not very pleasant collecting-grounds: they are mostly swamp, out of which rise hills nowhere more than 1,500 feet high and generally difficult to get at, being surrounded by soft ground. The sago-palm is common. The native villages are situated on the banks of rivers some distance upstream, and there are scarcely any paths except those made by the Dutch military posts: these are generally through flat land and are often untraversable owing to floods. There is much rain throughout the year. The islands are unhealthy: in spite of systematic employment of quinine and other precautions, all the members of a party of fifteen, except myself, suffered from malaria either on the islands or soon after leaving them.

As much on the latter account as because my period of absence from headquarters was limited, the Pagi Islands were not visited again.

The Mentawi Islands are apparently connected with each other by a sea-bottom of less than 100 fathoms, and most bathygraphical charts show a connection with Sumatra, *viâ* the Batu Islands to the north-east, by a narrow ridge of similar soundings; but I am inclined to doubt whether this ridge is as unbroken as indicated, for the faunas of the groups differ greatly; though the Mentawi Islands possess a much richer mammalian fauna than the undoubtedly deep-water islands of Simalur and Engano at the

extremities of the West Sumatran chain of islands, the fauna is much more peculiar and differentiated than that of Nias Island, also represented as being within the one-hundred-fathom line.

Apart from the connecting ridge, the group is surrounded by depths of 100—500 fathoms of water; further, everywhere directly between it and Sumatra lies the long Mentawi Basin with depths of 500—1,000 fathoms. Such conditions render several of the West Sumatran Islands, in spite of small size and lack of height, quite as distinct from each other and from the rest of Malaysia as the larger areas of that sub-region are from each other.

Various hypotheses have been offered as to the former conditions of the West Sumatran Islands, but most of them were made by students of the reptilian faunas.

In "Proceedings of the Zoological Society" (1927, pp. 797—807 and map) I discussed the past and present conditions of the Andaman-Christmas Island chain from the indications afforded by their mammals (q.v.), which, with the birds, are the best known of their animal classes and which are more instructive than the latter.

We have nothing to say about the habits of the Mentawi Blattidæ. They were mostly secured by our native assistants: and when a collector is endeavouring to obtain as much as he can of everything in a limited period he has no time for field studies. Dr. Hanitsch has aptly summed up this case:—"With most of us collectors the life history of an insect begins in the net and ends in the bottle!" C. Boden Kloss.

II. PREFACE

The results of Mr. Boden Kloss' expedition to the Mentawi Islands must be regarded as most satisfactory, a proof of the energy of the collectors. Not less than 53 species were obtained from this group (and two others from other localities only) some of them in huge numbers, *e.g.*, 51 examples of *Neoblattella digitata* n. sp., 59 of *N. hewitti* Shelf., *fusca* n. subsp., 101 of *Margattea nimbata* Shelf., 157 of *M. humeralis* Wlk., and 346 of *Epilampra communis* n. sp.*

Considering how little is known as yet of the Blattid fauna of the Malaysian sub-region, it is not surprising that the 53 species collected include one new genus, 19 new species, and one new sub-species. Most of the novelties belong to the Pseudomopinæ (Phyllodromiinæ), and future collections will probably bring in many more additions to that sub-family.

Notwithstanding the large number of species, old and new, and the many specimens taken, the collection revealed no startling new facts of distribution. Owing to the proximity of the Mentawi

*Practically all the examples of this species came from the leaves of bananas. C. B. K.

Islands to Sumatra, their Blattid fauna shows, a close relationship to that of the larger island. The Blattidæ of Sumatra had so far been much less known than those of the three other great sections of the Malaysian sub-region, the Malay Peninsula, Borneo with Palawan and Java with Bali. In fact, in my paper on "Malayan Blattidæ", Part II, (Journ. Malayan Branch, Royal Asiat. Soc. I, 1923, pp. 393—474) I showed that whilst 116 species were known so far from the Malay Peninsula, 115 from Borneo, and 76 from Java, only 38 species had been recorded from Sumatra. However, since the publication of that paper four years ago, I have fortunately been able to examine three considerable collections from Sumatra, *viz.*, one from Wai Lima, Lampongs, S. Sumatra, made by Dr. H. H. Karny and Mr. H. C. Siebers (Nov.—Dec., 1921), one from Medan on the East Coast, made by Dr. E. Mjöberg (1919—1921), and one from Fort de Kock, on the West Coast, made by Mr. E. Jacobson (1922—1926). Thus the material from Sumatra at my disposal for comparison has been quite as large as that from the rest of the Malaysian sub-region.

The table at the end of the paper gives a list of the Blattidæ taken on this expedition, with their distribution. It shows that of the 53 species obtained, 25 species are common to Sumatra, 17 to Java, 22 to Borneo, and 30 to the Malay Peninsula. I am afraid these figures indicate in no way the true relationship, but merely express the degree to which the Blattid fauna of those places has been worked out.

There is also no proof that of the species collected any are peculiar to the Mentawi Islands. However, it seems curious that *Epilampra communis* n. sp., of which not less than 346 examples were taken, and such large and striking forms as *Homalopteryx karnyi* n. sp. and *Epilampra mentawiensis* n. sp., had not yet been recorded from Sumatra or elsewhere.

The collection includes the cosmopolitan forms *Blattella germanica* L., *Periplaneta australasiæ* Fab., and *Pycnoscelus* (*Leucophæa*) *surinamensis* L. These species constantly recur in collections from the East. However, *Stylopyga rhombifolia* Stoll and *Periplaneta americana* L. which are equally common, were not taken. When in my paper on "Blattidæ from Northern Sarawak, chiefly Mt. Murud and Mt. Dulit" (Sarawak Mus. Journ. III, 1925, p. 75) I stated that on those mountains, besides *Blattella germanica* L., no other cosmopolitan Blattid had been met with, I essayed the explanation that the white man with those hangers-on to civilization, had not before penetrated into those regions. The paucity of cosmopolitan forms in the Mentawi Islands may perhaps be similarly explained.

The types and a considerable portion of the rest of the collection will, with the courteous permission of the Director of Museums, Straits Settlements and Federated Malay States, and the Director

of the Zoological Museum, Buitenzorg, Java, be kept in the Hope Department, University Museum, Oxford, and I wish in this place to express my thanks to Prof. Poulton, F.R.S., for so kindly allowing me to continue my work in the Department under his charge.

III. The genera **Anaplecta** Burmeister, **Anaplectoidea** Shelford and **Anaplectella** n.g.

In the year 1773 Charles de Geer[1] described a minute Cockroach, from Surinam, under the name of *Blatta minutissima.* The Insect measured only 2 lines (about 4 mm.) in length and was characterized by the tips of the wings being folded crossways. De Geer's description was meagre, but the enlarged illustration showed sufficiently clearly the transversely folded wings below the partly opened-out tegmina. Burmeister[2], in 1838, established the genus *Anaplecta* for this and three other New World forms, *viz.*, *A. lateralis*, from Colombia, *A. dorsalis*, from Porto Rico, and *A. unicolor*, from Colombia, and defined his new genus as possessing wings exceeding the tegmina by one-third of their length, which were folded longitudinally and then with their apex reflected over the rest of the wing. Saussure, in 1862—1868, added six species from Mexico, Guatemala and Colombia, and Brunner, in 1865, and Walker, in 1868, one each from Brazil. The first Oriental species were recorded by Walker, *viz.*, *A. gyrinoides*, from Ceylon, in 1868, and *A. subrotundata*, from Bombay, in 1871. Gerstäcker, in 1883, described a species from W. Africa, Saussure, in 1895, one from the Sudan, and Rehn, in 1904, one from Queensland. The genus was thus soon found to have a world-wide range.

In the meantime, in 1895, the first Malaysian species had been recorded by Saussure[3], *viz.*, *A. javanica.* Shelford[4], in 1906, described three more species from the same sub-region, *viz.*, *A. obscura* and *A. malayensis*, both from the Malay Peninsula, and *A. borneensis*, from Sarawak, to which, in 1923, I added *A. vittata*[5], from Singapore Island, and in 1925, three species from Sarawak, *viz.*, *A. cornea*[6], *A. maculifera* and *A. transversa.* They are all small Insects, the largest known Malaysian species not exceeding 7 mm., though *A. azteca* Saussure, from Mexico, reaches 10 mm. in length.

In all these species the ulnar vein of the wings is either simple or bifurcate. However, in the same paper in which Shelford

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[1] Mémoires pour servir à l'histoire des Insectes, Vol. III, p. 542, pl. XLIV, figs. 13 and 14. Stockholm, 1773.
[2] Handbuch der Entomologie, Vol. II, p. 494. Berlin, 1838.
[3] Ann. Mus. Genova, (2), Vol. XV, p. 71 (1895).
[4] T. E. S., London, 1906, p. 242, pl. XV, figs. 10—12.
[5] J. Malayan Branch, R. A. S., Vol. I, p. 396, fig. 1 (1923).
[6] Sarawak Museum J., Vol. III, pp. 78—81, figs. 1—3 (1925).

described the above three Malaysian species of *Anaplecta*, he established a new genus, *Anaplectoidea*, for a very similar form from Batchian and Macassar, *viz.*, *Anaplectoidea nitida*, which differed from *Anaplecta* by the ulnar vein of the wings being multiramose. In the following years Shelford added *Anaplectoidea dohertyi*, from Sangir[1], *A. modesta*, from Ceylon[2], and *A. notata*, from Phuc Son, Annam, and recently I described another species from Annam[3], *viz.*, *A. klossi*, collected by Mr. C. Boden Kloss and Dr. Malcolm Smith at Tour Cham, Phanrang, S. Annam, in 1918.

The apical area of the wing, both of *Anaplecta* and of *Anaplectoidea*, is more or less structureless, in any case it shows nowhere a resemblance to the close reticulation of the apical area of the wing in *Diploptera* Saussure (subfam. Oxyhaloinæ). However, besides by the fold, the apical area is always traversed by a vein which, starting at the base of the fold, may either lie entirely within the fold, or just behind it, forming in the latter case an acute angle with the fold, and ending just before reaching the margin of the apical area. This vein is apparently a continuation of the dividing vein and may be called the "apical vein". Shelford shows this vein in his illustrations (T. E. S., London, 1906, pls. XV and XVI), but neither he or any other author seem to refer to it in their descriptions.

Restricting ourselves for the present to the species from the Malaysian sub-region, this apical vein lies *behind* the fold in all the three species described by Shelford, (*viz.*, *A. obscura*, *A. malayensis*, and *A. borneensis*), and also in the four additional species since recorded by me from this region (*viz.*, *A. vittata*, *A. cornea*, *A. maculifera* and *A. transversa*). All these species also agree with each other in having the ulnar vein of the wing simple, and the first axillary vein 3-ramose.

However, in material I have recently examined from the Malay Peninsula, from Sumatra and now from the Mentawi Islands, there are forms closely allied to the ordinary type of *Anaplecta*, but differing from it by having the apical vein lying *within* the fold of the apical area. These forms also agree with each other in having the ulnar vein of the wing bifurcate, instead of simple, and the first axillary vein 4-ramose, instead of 3-ramose. These characters may justify the establishment of a new genus for which I propose the name of *Anaplectella*, the type of which is *A. smedleyi*, n. sp., from Sipora, described below. *Anaplecta thwaitesi* Shelford, from Ceylon, would come under the same new genus, and there are several similar forms from the Malay Peninsula and Sumatra which I hope shortly to describe in some other place. The species of *Anaplectella* which I have seen so far, also differ somewhat in

1 A. M. N. H. (7), Vol. XIX, p. 25 (1907).
2 Deutsche Entom. Zeit., 1909, p. 611—612.
3 J. Siam Soc., Nat. Hist. Suppl., Vol. VII, p. 10, fig. 1 (1927).

external appearance from *Anaplecta*: they are generally more convex in shape and of a more uniform, darker colour.

Anaplectella n. g. is also closely allied to *Anaplectoidea* Shelford. For there too the apical vein lies within the fold of the apical area, and the first axillary vein is 4-ramose, the chief difference between these two genera being that in *Anaplectoidea* the ulnar vein of the wing is multiramose. Less essential characters of *Anaplectoidea* are: size slightly larger, shape more elongate, colour a more or less uniform amber, apical area shorter.

These three genera may therefore be defined as follows:—

1. *Anaplecta* Burmeister: Wings with a large triangular apical area which, in a state of repose, is folded longitudinally and then reflected over the rest of the wing; posterior half of this area traversed by the apical vein, a prolongation of the dividing vein; ulnar vein simple; first axillary 3-ramose.
2. *Anaplectella* n. g.: allied to *Anaplecta* Burmeister, but the apical vein running within the fold of the apical area; ulnar vein bifurcate; first axillary 4-ramose.
3. *Anaplectoidea* Shelford: allied both to *Anaplecta* and to *Anaplectella*: apical vein running within the fold of the apical area; ulnar vein multiramose; first axillary 4-ramose.

IV. The genus **Ischnoptera** Burmeister.

Hebard, in his "Studies in the group *Ischnopterites*" (Trans. Amer. Entom. Soc., Vol. XLII, pp. 337—383 (1906)) subjects the New World species of *Ischnoptera* to a thorough examination and comes to the conclusion that this genus, with its genotype *I morio* Burmeister, is almost entirely restricted to the New World, and proposes the name *Symploce* for the Old World forms. The armature of the front femora offers perhaps the readiest means for distinguishing these two genera. In *Ischnoptera* the front femora are armed after type B, *i.e.* the ventro-cephalic margin bears proximally a few heavy spines, which distally are followed by a row of minute piliform spines; in *Symploce* the armature is after type A, *i.e.* the spines are of a uniform character and decrease distally in size more or less gradually. Of the two new species of *Ischnoptera* described below, *I. klossi* would be an *Ischnoptera* in Hebard's sense, whilst *I. nigra* would come under his *Symploce*, as would also all other Malaysian species so far described under *Ischnoptera*, and to the types of which I happen to have access, *viz.*, *I. reversa* Wlk., *I. cavernicola* Shelf., *I. excavata* Shelf., *I. montis* Shelf., and *I. ridleyi* Shelf.—I hope at some future time to enter more fully into this question.

V. The genus **Phyllodromia** Serville.

In 1903, in the Proceedings, Entomological Society of Washington, Vol. V, pp. 232—234, A. N. Caudell pointed out that the name *Phyllodromia* was pre-occupied by a Dipterous Insect and proposed the name *Blattella* instead. Shelford some years after, in Ent. Mo. Mag. (2), Vol. XXII, pp. 154—6 (1911), published a revision and sub-division of the genus which has since been generally accepted and which I am following in this paper. Shelford's sub-divisions were based upon four characters, *viz.* (1) whether the sexes are similar or not, (2) whether the discoidal sectors (*i.e.* the branches of the median and the ulnar vein) of the tegmina are longitudinal or oblique, (3) whether the front femora are armed after type A or type B,* and (4) whether an apical triangle is present in the wing, or not.

Put into the form of a key, we would get the following arrangement: —

*For an explanation of these terms see above under *Ischnoptera.*

Sexes similar ...	discoidal sectors longitudinal ...	femoral spines type A ...	wings: anterior part narrow; ulnar simple or bifurcate; no apical triangle ...	*Blattella* Caudell
			wings: anterior part broad ulnar ramose; no apical triangle ...	*Neoblattella* Shelf.
		femoral spines type B ...		*Margattea* Shelf.
	discoidal sectors oblique ...	femoral spines type A ...	no apical triangle ...	*Eoblatta* Shelf.
		femoral spines type A or B ...	large apical triangle ...	*Chorisoblatta* Shelf.
Sexes dissimilar ...	discoidal sectors oblique ...	femoral spines type A ...	ulnar ramose; no apical triangle ...	*Supella* Shelf.

The first three characters allow of a satisfactory sub-division of *Phyllodromia.* But it is otherwise with the fourth character, the apical triangle of the wing, and I am not aware that anyone since Shelford's time has used it for the purpose of classification. Of recent publications *e.g.*, it has no place in I. Bolivar's key of the Phyllodromiinæ, given in his "Orthoptera Dictyoptera of the Seychelles" (A. M. N. H. (9), Vol. XIII, p. 320 (1924)), nor in Hebard's key to the "Pseudomopinæ" in his "Orthoptera of the West Indies.—I. Blattidæ" (Bull. Amer. Museum Nat. Hist., Vol. LIV, p. 5 (1927)). The apical triangle is much more frequent and much more irregular in its occurrence than Shelford's classification would lead one to expect. It certainly does occur in many species of *Blattella, Neoblattella* and *Margattea, e.g.*, in the two new species of *Blattella* described below, in *Neoblattella irregulariter-vittata* Brunner, *N. hewitti* Shelf., *Margattea humeralis* Wlk., *M. maculata* n. sp., etc., whilst exactly in the three species of *Chorisoblatta* of this collection the apical triangle is less developed than in any of the forms just named.

However, the apical triangle is a character which may easily be left out in the sub-division of *Phyllodromia* and which little affects the validity of the six genera proposed by Shelford, only one change may be suggested: *Chorisoblatta* Shelf. includes at present forms with front femora armed after type A or type B. Those species with type A might with advantage be transferred to *Eoblatta* Shelf.

VI. Account of the Collection.

ECTOBINÆ

1. Theganopteryx apicigera Walker.

Blatta apicigera Wlk. Cat. Blatt. B. M., p. 227 (1868).

Siberut, 2 ♀ ♀.

Known from all parts of the Malaysian sub-region.

2. Anaplecta javanica Saussure (pl. I, fig. 1).

Ann. Mus. Genova, (2), Vol. XV, p. 71 (1895).

North Pagi, 1 ♂.

This species, first described by Saussure from Batavia in 1895, had apparently not been recorded again, though there is in the Oxford Museum an unnamed specimen, taken by H. N. Ridley in the Botanic Gardens, Singapore, in 1908. It is readily distinguished by the character of the median vein of the wing, the middle portion of which, *viz.*, the part lying between the 1st and the 2nd transverse venules, is much fainter than the rest of the vein ("vena media......... in dimidiâ parte proximali evanida" Saussure).

The N. Pagi specimen may be described as follows: —

♂. Head fusco-castaneous, labrum testaceous; eyes far apart; antennæ fuscous. Pronotum sub-oval, fusco-castaneous, shining, lateral margins yellowish hyaline. Tegmina fusco-castaneous, costal margin broadly yellowish hyaline; 7 costals. Wings hyaline, costal margin infuscated, 4 costals, medio-discal field with 3 transverse venules; median vein simple, the portion between the 1st and 2nd transverse venule much fainter than the rest; ulnar vein simple, ulnar field without transverse venules; 1st axillary 3-ramose; apical area barely 2/5 of the total wing length, basal margin straight, apical vein lying behind the apical fold. Abdomen below testaceous, darker towards the sides. Cerci: 8-jointed. No styles. Legs testaceous.

♂. Total length 3·5 mm.

3. Anaplectella smedleyi n. g.* and sp. (pl. I, fig. 2).

Sipora, 1 ♂.

♂. Dark castaneous.—Head exposed, testaceous, vertex darker; eyes far apart; antennæ exceeding the body, testaceous. Pronotum sub-oval, posterior margin only slightly rounded; disk shining black; margins broad, hyaline. Tegmina slightly exceeding the body, fusco-castaneous, mediastinal area broad, hyaline, pale yellowish; 13 costals; ulnar 4-ramose. Wings fuscous, costal and apical areas opaque, very dark brown; 5 costals; medio-discal field crossed by 4 venules, a fifth incomplete; ulnar bifurcate; 1st axillary 4-ramose. Apical area parabolic, base slightly obtusely angled, 2/5 of total wing length; apical vein lying within the apical fold. Abdomen below shining castaneous to black. Cerci dark brown. Right style present (left missing ?). Legs light testaceous.

♂. Total length 7 mm.

Closely allied to *Anaplecta thwaitesi* Shelford, from Ceylon, the type of which is in the Oxford Museum. It differs from it by its considerably darker colour, the number of the costals both of tegmina (*viz.* 13 instead of 11) and wings (5 instead of 6), and the number of transverse venules of the medio-discal field (4 instead of 5). *Anaplecta thwaitesi* will have to be placed under this new genus, as also two or three species from Sumatra, collected by Dr. E. Mjöberg (1919—1921), which I shall describe elsewhere.

4. Anaplectoidea saundersi, n. sp. (pl. I, figs. 3, 4 and 5).

Siberut, 1 ♂, 3 ♀ ♀. Sipora, 1 ♂.

♂. Amber-coloured.—Head uniform pale orange, eyes moderately far apart, antennæ exceeding the tegmina, pale testaceous. Pronotum sub-circular, on either side drawn out into an obtuse angle; disk pale orange, with two comma-like black spots; lateral margins hyaline, faintly orange. Tegmina exceeding the

*For a description of this new genus see antea p. 8.

body, pale amber, diffused with darker orange-amber from the base of the radial and ulnar veins, spreading out along the hind border of the mediastinal area and the anterior border of the anal sulcus, a triangular shaft of orange projecting from behind into the anal area; 13 costals; 6 discoidal sectors; 5 faintly marked anals. Wings hyaline, slightly fuscous, costal and apical areas densely fuscous; 13 costals, clavated; medio-discal area with 10 transverse venules, median vein simple, ulnar vein strongly sinuous, with 3 branches; apical area barely ¼ of the length of the wing, base obtusely angled; first axillary bifurcate, its anterior half giving off another branch which bifurcates once more. Abdomen below testaceous, sides darker. Sub-genital lamina triangular to rounded. Cerci testaceous. Two styles, centrally placed, close to each other. Legs testaceous.

♂. Total length 9 mm.

♀. Agrees in most respects with the ♂, especially in the colouring of the tegmina. Differences are: the ulnar of the wing of the ♀ bifurcates at about 3/5 from its origin, the anterior branch bifurcating once more, the final result thus being 3, instead of the 4 branches in the ♂; the 1st axillary of the wing of the ♀, instead of bifurcating, gives off 3 branches more or less parallel to each other, the final result being 4 branches, as in the ♀.—Sub-genital lamina rounded. One ♂ with egg-care, placed horizontally, suture to the right.

♀. Total length 8 mm.

This species is identical with several specimens which Mr. C. J. Saunders, late of the Straits Settlements Civil Service, took a few years ago on Singapore Island, *viz.* in the jungle at the Impounding Reservoir, Thomson Road, Nov. 1922, and on Bukit Timah, Nov. and Dec. 1922. I have therefore much pleasure in naming this species after him. I referred to these Singapore specimens in my recent paper "On a Collection of Blattidæ from Southern Annam" (J. Siam Soc., N. H. S., Vol. VII, p. 10 (1927)), when I regarded them as "very similar to, if not idential with *A. notata* Shelf." The type (♂) of this latter species, from Phuc Son, Annam, is in the Oxford Museum, and it is certainly very closely allied to *A. saundersi.* The branching of the ulnar of the wings is identical in the two species, and the difference in the number of costals is only slight, *viz.* 15 costals in the tegmen, and 14 costals in the wing of *A. notata*, against 13 costals both in the tegmen and in the wing of *A. saundersi.* More important probably is the colour of the pronotum: *A. notata* has the disk castaneous, but *A. saundersi* pale orange, with two black dots.

The species of *Anaplectoidea* Shelford, described so far are:—

A. nitida Shelf., from Celebes and Batchian. T. E. S., 1906, p. 248, pl. XVI, figs. 8 and 9.

A. dohertyi Shelf., from Sangir, A. M. N. H. (7), Vol. XIX, p. 25 (1907).

A. modesta Shelf., from Ceylon, Dentsche Ent. Zeit., 1909, p. 611.

A. notata Shelf., from Phuc Son, Annam, Dentsche Ent. Zeit., 1909, p. 612.

A. klossi Hanitsch, from Tour Cham, Phanrang, S. Annam, J. Siam Soc., Nat. Hist. Suppl., Vol. VII (1927), p. 10, fig. 1.

A. saundersi Hanitsch, from Singapore and Mentawi Is.

PSEUDOMOPINÆ (PHYLLODROMIINÆ)

5. Pseudothyrsocera rubro-nigra Hanitsch.

Phyllodromia rubro-nigra Hanitsch. Journ. Malayan Br., R. A. S., Vol. I, p. 412, figs. 11 and 12 (1923).

Siberut, 8 ♂ ♂, 1 ♀; Sipora, 1 ♂.

I have removed this species to *Pseudothyrsocera* Shelford, as its antennæ are hirsute, though only to a slight degree, and the ulnar vein of the tegmina angled. The types (♂ and ♀) came from Gunong Angsi, Negri Sembilan, 2,000′—2,790′, where I took them in April 1918, but both this species and *Pseudothyrsocera* (Blatta) *xanthophila* Walker, to which it is closely allied, differing only by its much darker colour, occur also on Sumatra. M. E. Jacobson took examples of the two species at Fort de Kock, 920 m., (1922—1926).

6. Ischnoptera klossi n. sp.

Siberut, 4 ♂ ♂; Sipora, 3 ♂ ♂, 2 ♀ ♀.

♂. Castaneous.—Head slightly exposed, uniform testaceous; eyes far apart; antennæ somewhat exceeding the tegmina, fuscous to black. Pronotum with the anterior margin parabolic, posterior margin rounded; testaceous, with a large U-shaped mark, open in front. Tegmina exceeding the body by $\frac{1}{4}$ to $\frac{1}{3}$ of their length, castaneous, mediastinal area and costal margin pale testaceous; radial vein bifurcating near base; 18 costals, 8 discoidal sectors; and sulcus reaching to 2/5 of the sutural margin; 6 anals. Wings fuscous, costal area almost black, mediastinal vein 3-ramose, radial vein simple, sinuous; 12 costals, all stout, distally not incrassated; median vein simple, strongly sinuous; ulnar vein sending 5 branches to the apex, and two very short ones to the dividing vein; apical triangle conspicuous; 1st axillary with 3 branches; cross venules stout, especially between the radial and the median vein, and between the branches of the ulnar. First abdominal tergite testaceous, the succeeding ones darker, the 6th almost black, the 7th testaceous. Abdomen below testaceous. Supra-anal lamina triangular, apex truncate, posterior margin slightly excised in the middle. Sub-genital lamina produced, posterior margin excised,

leaving a small triangular lobe projecting on either side. Cerci testaceous. Left style cylindrical, right style acuminate, both hirsute. Legs testaceous; front femora with 3 large spines on the anterior margin, followed by a series of minute piliform spines; hind femora strongly armed.

♂. Total length 15 mm.; body 11 mm.; pronotum 3 × 4 mm.; tegmina 12 mm.

♀. Similar to the ♂. Supra-anal lamina produced, rounded, entire, shining black. Sub-genital lamina ample, rounded, entire, rufo-testaceous.

As pointed out under *Ischnoptera* (p. 8), this is the only known Malaysian species of the genus, in which the front femora are armed after type B.

7. Ischnoptera nigra n. sp. (pl. I, fig. 6).

Siberut, 2 ♂ ♂; Sipora, 2 ♂ ♂; N. Pagi, 2 ♂ ♂.

♂. Shining black.—Head only barely projecting, shining black; eyes moderately far apart; antennæ somewhat exceeding the tegmina, black, fuscous distally. Pronotum sub-circular, lateral margins slightly inverted; shining dark castaneous to black; margins very narrow, deep orange. Tegmina much exceeding the body, shining fuscous black; radial vein bifurcate from near base; 15 costals; 6 discoidal sectors; anal sulcus prominent, 6 anals. Wings fuscous, irridescent; costal margin opaque, almost black, all the veins black; mediastinal vein more than half the length of the wing, 3-ramose; 10 costals; median vein simple; ulnar vein stout, with 6 branches, two of which go to the dividing vein, the others to the apex; 1st axillary 4-ramose. Abdomen below dark castaneous. Supra-anal lamina rounded, entire. Sub-genital lamina large, triangular. Cerci black. Left style normal, right style shifted towards the apex of the sub-genital lamina. Legs long, fusco-castaneous, heavily spined; front femora on the anterior edge with 4 large spines, followed by 5 shorter ones (type A).

♂. Total length 16 mm.; body 11 mm.; pronotum 3·2 × 4 mm.; tegmina 12 mm.

Readily distinguished by its black colour from all other Malaysian species of *Ischnoptera*.

8. Blattella germanica Linné.

Blatta germanica L., Syst. Nat. (ed XII), Vol. I, p. 668 (1767).

Siberut, 4 ♀ ♀; Padang, 4 ♀ ♀.

Cosmopolitan.

9. Blattella ridleyi n. sp. (pl. II, fig. 6).

Siberut, 1 ♀.

The description of this species is based upon three specimens, *viz.* a ♀, from Siberut; a ♂ in the Oxford Museum, from the Botanic Gardens, Singapore (H. N. Ridley, April—June, 1908); and a ♂ in material I have here from the Raffles Museum, taken at Tanglin, Singapore (C. J. Saunders, July 1918).

Taking the earlier Singapore ♂ example as type, the description is as follows:

♂. Small. Strikingly marked: dark castaneous, with broad, cream-white margins on pronotum and tegmina.—Head exposed, testaceous, vertex with 4 longitudinal castaneous stripes; front castaneous, with a median yellowish stripe reaching down to the middle of the front; eyes far apart; antennæ (mutilated) yellowish testaceous. Pronotum sub-oval, hind margin straight; dark castaneous, with broad, milk-white lateral margins. Tegmina exceeding the abdomen, reaching to the tips of the cerci; deep castaneous, with broad, milk-white margins, occupying practically the whole of the mediastinal and costal areas, the boundary line between the castaneous and the white portions being zig-zag shaped; about 20 costal veins, with close reticulation between them; 6 longitudinal discoidal sectors. Wings hyaline; radial vein single, 12 costals, their ends incrassated into orange-coloured knobs; median vein straight, simple; 8 strongly marked and widely spaced cross-venules between the radial and the median vein; ulnar vein bifurcate; apical triangle conspicuous; 1st axillary 3-ramose. Abdomen below brownish. Sub-genital lamina produced, triangular. Cerci testaceous, tips black. Styles symmetrical. Legs testaceous; front femora with a few weak spines near the centre (type A).

♂. Total length 8 mm.

The ♀ from Siberut differs from the two ♂ ♂ Singapore specimens in the following minor points: face mottled testaceous and light castaneous; wings with 11 costals, and 12 cross-venules between the radial and the median vein; abdomen below shining black, sub-genital lamina light castaneous, with its posterior border milky-white.

♀. Total length 8 mm.

10. Blattella tristis n. sp.

Siberut, 1 ♂, 1 ♀. (Also Medan, Sumatra: Mjöberg, 1 ♂).

♂. Small.—Head exposed, shining, dark castaneous; eyes far apart; antennæ testaceous, as long as the body. Pronotum sub-circular, posterior margin straight; disk dark castaneous, lateral margins dark amber. Tegmina just exceeding the cerci, amber-coloured; costal area broad, 12 costals, 5 longitudinal discoidal sectors, anal sulcus deeply impressed, 5 anal veins. Wings hyaline, mediastinal vein bifurcate, ends swollen; radial vein straight, simple; 12 costals, the first 7 distally much swollen, forming an

opaque area in the middle of the anterior border of the wing; median vein simple, 8 well-marked cross-venules between the median and the radial vein; ulnar vein bifurcate, posterior branch terminally once more bifurcate; apical triangle conspicuous; 1st axillary bifurcate, each half bifurcating again. Abdomen below dull testaceous. Supra-anal lamina triangular. Sub-genital lamina rectangular, nearly as long as broad. Cerci brownish. Styles symmetrical. Legs fusco-castaneous; front femora with a few weak spines near the centre (type A); hind femora weakly spined.

♂. Total length 8 mm.; body 6 mm.; tegmina 6·5 mm.

♀. Similar to the ♂. Tegmina with a diffused fuscous blotch between the anal sulcus and the protimal costal veins. Wings with 13 costals, the first 8 distally much swollen; 11 cross-venules between the median and the radial vein. Abdomen below much darker than in the ♂, almost piceous. Sub-genital lamina ample, rounded, with a slight median indentation.

♀. Total length 8·5 mm.; body 6·2 mm.; tegmina 6·8 mm.

Allied to *Blattella* (*Blatta*) *funebris* Walker, from Sarawak, the type (♂) of which is in the Oxford Museum, but smaller, its head piceous, instead of orange, and its tegmina amber, instead of blackish.

11. Neoblattella irregulariter-vittata Brunner.

Phyllodromia irregulariter-vittata Brunner. Abh. Senck. Ges., Vol. XXIV, p. 202 (1898).

Siberut, 1 ♂, 1 ♀; Sipora, 6 ♂♂, 3 ♀♀; N. Pagi, 2 ♂♂.

First described by Brunner, from Borneo and Java. Both the Museums at Oxford and Cambridge contain a specimen each, taken by Shelford in Sarawak (1900—1903). I have recorded this species from Mt. Murud, Sarawak, (E. Mjöbery, 1922) and have also before me a series from Wai Lima, S. Sumatra (Karny and Siebers, 1921).

I supplement Brunner's description which is short and based upon a ♀ only, by that of a ♂ from Sipora.

♂. Large, castaneous.—Head slightly exposed, pale orange; eyes moderately far apart; antennæ fuscous. Pronotum with the anterior margin parabolic, posterior margin slightly produced; orange, disk on either side with a broad irregular black vitta, the two vittæ not quite meeting in front and behind, and enclosing a narrow orange space between them. Tegmina much exceeding the abdomen, castaneous, costal margin flavescent, radial vein bifurcate from its middle; 20 costals; 7 longitudinal discoidal sectors; anal sulcus prominent, 6 anals. Wings dark fuscous, middle portion of the costal margin yellowish; mediastinal vein 3-ramose; radial vein bifurcate at 2/5 from its base; 14 costals; median vein simple, strongly sinuous; ulnar 3-ramose; apical triangle prominent; 1st axillary 5-ramose. Abdomen above dark fuscous, with light lateral

margins; abdomen below pale orange testaceous. Supra-anal lamina narrow, transverse. Sub-genital lamina much produced. Cerci dark brown. A single style, curved, on the right, none on the left. Legs orange testaceous. Front femora with 4 large spines on the anterior margin, followed by about 4 smaller spines (type A).

12. Neoblattella hewitti Shelford, **fusca** n. sub-sp.

Siberut, 20 ♂♂, 11 ♀♀; Sipora, 15 ♂♂, 11 ♀♀; N. Pagi, 1 ♀, 1 ♂.

♂. Large, light castaneous.—Head only slightly exposed, orange, eyes moderately far apart, antennæ fuscous. Pronotum with the anterior margin parabolic, posterior margin rounded, produced; disk orange, lateral margins pale orange, posterior margin diffused with fuscous. Tegmina much exceeding the body, light castaneous, only the mediastinal area hyaline; radial vein bifurcate from just beyond its middle, 20 costals, 8 longitudinal discoidal sectors, anal sulcus prominent, 6 anals. Wings dark fuscous, costal margin orange, mediastinal vein 4-ramose, radial vein sinuous, bifurcate from its middle, 16 costals, median vein sinuous, simple, ulnar 3-ramose, apical triangle conspicuous. Body below dull orange. Supra-anal lamina large, triangular. Sub-genital lamina sub-quadrate. Cerci dull orange. No styles. Legs testaceous to orange; front femora with 4 large spines on the anterior margin, followed by about 6 spines which are only slightly smaller (type A); posterior femora strongly armed.

♂. Total length 18 mm.; body 12 mm.; pronotum 4 × 5 mm.; tegmina 16 mm.

♀. Similar to the ♂, sub-genital lamina ample, rounded.

Differs from *Neoblattella* (*Phyllodromia*) *hewitti* Shelford, (A. M. N. H. (7), Vol. XIX, p. 33 (1907)) chiefly by the colour of the wings which are fuscous, instead of orange. Besides the type (♂), in the Oxford Museum, from Kuching, Sarawak, I have seen another Bornean example (♀), presented by Shelford to the Cambridge Museum, also specimens from Mt. Murud and the Kalabit country, Sarawak (E. Mjöberg, 1922), further specimens from the Malay Peninsula, *viz.* from Gunong Tahan, Pahang, 3,300′ (E. Seimund, Nov. 1920) and from the Tahan, River, Pahang (H. M. Pendlebury, Nov. 1922) and in all these the wings are of a pale orange colour, with the costal area dark orange. On the other hand, examples taken by Karny and Siebers at Wai Lima, Lampong, S. Sumatra, in 1921, have the wings fuscous and thus agree with the n. sub-sp. from Mentawi.

13. Neoblattella digitata n. sp. (pl. I, fig. 7).

Pulau Tello, Batu Islands, 2 ♂♂; Siberut, 14 ♂♂, 2 ♀♀; Sipora, 17 ♂♂, 7 ♀♀; N. Pagi, 7 ♂♂, 2 ♀♀.

♂. Head exposed, shining dark castaneous to black; antennæ dark fuscous, exceeding the body. Pronotum parabolic in front,

moderately produced behind; disk orange-testaceous, with a large, dark castaneous blotch in front, sending off a number of finger-like processes backwards; posterior margin with a broad, dark castaneous border; lateral margins broadly hyaline. Tegmina much exceeding the body, mediastinal area sub-hyaline, pale yellowish; remainder of tegmina uniformly dark amber to light castaneous; costal area as wide as the discoidal area; 14 costals; 10 longitudinal discoidal sectors; anal sulcus prominent, dark castaneous, 6 anal veins. Wings hyaline, costal margin sub-fuscous, cloudy markings close behind the apical triangle; mediastinal vein bifurcate, ends thickened; radial vein bifurcate at $\frac{3}{4}$ from its base, 11 costals, all the costals incrassated, a fuscous patch extending from the mediastinal to the 5th costal; posterior branch of the radial multi-ramose, ending in 5 branches; median vein straight, simple; ulnar vein multi-ramose, ending in 6 branches; apical triangle well developed; 1st axillary 5-ramose. Abdomen below testaceous, with marginal and sub-marginal dark blotches. Supra-anal lamina triangular, slightly notched. Sub-genital lamina ample, more than half as long as broad. Cerci testaceous, hirsute. Styles symmetrical, a few fine setæ at the apex. Legs dark testaceous, heavily armed; front femora on the anterior margins with 5 large spines, followed by 7 smaller spines (Type A.).

♂. Total length 19 mm.; body 12 mm.; pronotum 4·2 × 5 mm.; tegmina 15 mm.

♀. Similar to the ♂. Sub-genital lamina ample, middle portion of anterior margin testaceous, remainder shining black. Type with large ootheca, black, with close, longitudinal striæ, suture uppermost.

♀. Total length 18 mm.; body 12·5 mm.; pronotum 5 × 5·5 mm.; tegmina 13·5 mm.

A ♂ example, from N. Pagi, differs from the others by the ulnar of the wing sending a short branch to the dividing vein, thus resembling an *Ischnoptera*. However, I think it unnecessary for the present to establish even a n. subsp. for this one aberrant form.

14. Neoblattella latimarginata n. sp.

Siberut, 4 ♂♂, 3 ♀♀; Sipora, 11 ♂♂, 10 ♀♀; N. Pagi, 4 ♂♂, 4 ♀♀.

♂. Castaneous, with pale margins.—Head slightly exposed, pale castaneous, with three dark transverse bands on the face; eyes apart by $\frac{1}{3}$ the width of the head; antennæ exceeding the tegmina, testaceous. Pronotum with the anterior border parabolic, posterior border slightly produced; disk with a large triangular castaneous blotch, lighter in the middle line; lateral margins broad, semi-hyaline, pale testaceous. Tegmina much exceeding the abdomen; mediastinal area, and the outer and larger portion of the costal area pale testaceous, semi-hyaline; remainder of the tegmina castaneous,

darkest in the anal area; 10 costals, 9 longitudinal discoidal sectors, 5 anals. Wings pale fuscous; middle of the costal margin dark fuscous, apex of wing orange; veins stout, dull orange; mediastinal and radial veins simple; 8 costals, first six simple, their ends incrassated, 7th bifurcate, 8th ramose; median vein almost straight, bifurcate; ulnar with 5 branches, cross venules stout; apical triangle large; 1st axillary with 4 branches. Abdomen below testaceous, black in the centre. Supra-anal lamina narrow, triangular. Sub-genital lamina large, ending in two small triangular lobes, at the base of which, on either side, there is a depression in which the styles lie concealed. Cerci long, light castaneous. Legs uniformly testaceous, strongly armed; front femora with the proximal one-fourth unarmed, middle portion with 4 or 5 large, irregular spines, followed by about 7 somewhat smaller, regular spines (Type A.).

♀. Sub-genital lamina ample, rounded. Pronotum considerably lighter than in the ♂, disk uniform orange brown.

♂ and ♀. Total length 19 mm.; body 15 mm.; pronotum 4·1 × 4·5 mm.; tegmina 16 mm.

[15. **Neoblattella radicifera** n. sp.

Padang, W. Sumatra, 1 ♀.

As the single specimen taken on this expedition is not in perfect condition, the following description is based upon a ♀ from Fort de Kock, Sumatra, 920 m. (E. Jacobson, 1924). Several ♂ ♂ from that and other localities (*see* below) are unfortunately also less perfect than the ♀ ♀ obtained.

♀. Head exposed, testaceous, a large round brown macula between the eyes; eyes moderately far apart; antennæ testaceous. Pronotum sub-oval, slightly produced behind; disk dull fulvous, its posterior half with two V or Y-shaped brown maculæ, of somewhat rugged, root-like outline (hence the specific name); lateral margins broadly hyaline. Tegmina much exceeding the abdomen, pale testaceous, almost hyaline; radial vein bifurcate at $\frac{2}{3}$ of its length; about 20 costals; 7 longitudinal discoidal sectors; anal area much elongated, reaching to nearly the middle of the sutural margin, 7 anals. Wings pale fuscous, mediastinal vein quite 3/5 the length of the wing, 4-ramose; radial vein bifurcating at 3/5 of its length, from the base of the 4th costal; 9 costals, stout; median vein only slightly sinuous; ulnar vein 3-ramose; transverse venules strongly marked; apical triangle only slightly developed, long and narrow; 1st axillary 4-ramose; transverse venules between the axillaries of washed-out appearance. Body below testaceous, with diffused darker sub-marginal maculæ. Supra-anal lamina small, rounded, sub-triangular. Sub-genital lamina ample, rounded. Cerci black and white banded. Legs testaceous, moderately spined, anterior femora on the inner margin with 4 large spines, followed by a few smaller spines (type A.).

♀. Total length 15 mm.; body 9 mm.; pronotum 3 × 4 mm.; tegmina 12 mm.

♂. Similar to the ♀. Supra-anal lamina triangular. Subgenital lamina triangular. Styles not observed.

The transverse venules arising from the ulnar of the wing before it divides are in some cases so strongly developed and directed apically, that this species can be regarded as an *Ischnoptera* in the making.

Distribution.—This species has a considerable range. Besides the material from Padang and Fort de Kock, I also have examples from the following localities: Wai Lima, S. Sumatra (Karny and Siebers, Nov.—Dec. 1921); Medan and Sibolangit, E. Sumatra (E. Mjöberg, 1919—1921); Kuala Lumpur (H. M. Pendlebury, Oct. 1922); Jor Camp, Perak, 2,000′ (E. Seimund, Aug. 1922); Kuala Tahan, Pahang (H. M. Pendlebury, Nov. 1921); Upper Pran River, Peninsular Siam (Major W. R. S. Ladell, April 1926).]

16. Margattea contigua Walker.

Blatta contigua Walker Cat. Blatt. B. M., p. 228 (1868).

Pulau Tello, Batu Islands, 2 ♂♂, 1 ♀; Siberut, 4 ♂♂, 3 ♀♀; Sipora, 2 ♀♀.

Originally described from New Guinea, I have already recorded this species from Mt. Dulit, Sarawak, and have seen a long series from the Kei Islands (Mr. H. C. Siebers, 1922), also 1 ♂ from Klong Rang Sit, Siam (Major W. R. S. Ladell, May 1926). In recording it from Mt. Dulit, I gave my reasons why this species should be kept separate from *P. propinqua* Wlk., Sarawak Museum Journal, Vol. III, p. 82, 1925.—Walker's description of two pale brownish bands across the head ("caput fuscescente bifasciatum") is correct. These two bands are separated by a narrow, porcelain-white crossbar just above the antennal sockets, and it is this character by which the species is most readily recognized.—Walker mentions its unusually long cerci. In a ♂ from Pulau Tello, 14·5 mm. in total length, the cerci measure 4 mm. and consist of 14 joints.

17. Margattea humeralis Walker.

Blatta humeralis Walker. Cat. Blatt. B. M., Suppl., p. 140 (1869).

Phyllodromia contingens Shelford (partim). T. E. S. 1906, p. 490, pl. XXX, fig. 4; Gen. Ins., fasc. 73, p. 13 (1908).

Phyllodromia abrupta Hanitsh. J., Malayan Branch, R. A. S., Vol. I, p. 399 (1923).

Siberut, 16 ♂♂, 55 ♀♀; Sipora, 27 ♂♂, 51 ♀♀; N. Pagi, 2 ♂♂, 6 ♀♀.

Shelford regarded this species as synonymous with *Phyllodromia* (*Blatta*) *contingens* Walker, but an examination of the types both of which are in the Oxford Museum, has convinced me that they represent distinct species. I also find that *P. abrupta* mihi, is nothing but *M. humeralis* Wlk. and must therefore be suppressed. This species is readily recognized by a dark stripe, running along the radial vein of the tegmina, which is absent in *P. contingens* (Walker: "a tawny stripe extending in the disk from the base nearly to the tip; a brown streak along the humeral trunk").

The type of *B. humeralis* Walker came from Singapore, and that of *P. abrupta* mihi, from Ginting Bidei, Selangor, 2,000′ (C. B. Kloss, April 1917). Also taken by Capt. H. M. Pendlebury in the Gombak Valley, K. Lumpur (Oct. 1921) and at Batang Padang, Perak (May 1923), and by Drs. Karny and Siebers at Wai Lima, S. Sumatra, Nov.—Dec. 1921.

[18. **Margattea propinqua** Walker.

Blatta propinqua Wlk. Cat. Blatt., B. M., p. 228 (1868).

Phyllodromia contigua Shelford (partim), Gen. Ins., 73, p. 14 (1908).

Pulau Tello, Batu Islands, 2 ♂♂.

Originally described from Celebes, the type (♂) being in the Oxford Museum, and now for the first time recorded from the Malaysian sub-region. Shelford regarded it as synonymous with *Phyllodromia contigua* Wlk., but, though closely allied, the latter species can always be distinguished by the porcelain-white cross bar just above the antennal sockets.

The following may replace Walker's meagre description:

♂. Head freely exposed, uniformly orange testaceous; eyes far apart; antennæ exceeding the body, testaceous. Pronotum large, oval, posterior border almost straight; disk dull orange, with a blackish comma-like mark in the centre of each half; lateral margins broad, hyaline. Tegmina much exceeding the abdomen, sub-hyaline, pale testaceous; costal area broad, 11 costals, of which the first 8 are simple, the remaining bifurcate; 7 longitudinal discoidal sectors; anal sulcus reaching to nearly the middle of the posterior border of the tegmen; 5 anals. Wings hyaline, veins dull orange; mediastinal vein bifurcate, ending beyond the middle of the costal border; radial vein straight, simple; 7 costals, the fifth 3-ramose, the others simple, terminally not incrassated; median vein simple, almost straight; ulnar 6-ramose; apical triangle inconspicuous; 1st axillary 4-ramose. Abdomen below dull orange. Supra-anal lamina sub-quadrate, posterior border with 3 short lobes, the two lateral ones bearing the styles. Cerci long, dull orange, semi-transparent. Styles small. Front femora with two small spines near the centre of the anterior margin, followed by a close series of piliform spines (type B.).

♂. Total length 15 mm.; body 11 mm.; pronotum 3 × 4·2 mm.; tegmina 12 mm.]

19. Margattea latius-vittata Brunner.

Phyllodromia latius-vittata Brunner. Abh. Senck. Ges. Vol. XXIV, p. 202 (1898).

Siberut, 1 ♂, 2 ♀♀; Sipora, 1 ♂.

Hitherto known from Java, Singapore and Macassar only. Brunner's description which gives little more than the colour, may be supplemented by that of a ♂ from Siberut:

♂. Tegmina: radial vein simple, 15 costals, 7 longitudinal discoidal sectors; 6 anals. Wings: light fuscous, costal area dark fuscous; mediastinal vein 3-ramose; radial vein simple; 12 costals, their ends incrassated; median vein simple, strongly sinuous; ulnar 3-ramose; apical triangle small; 1st axillary 5-ramose. Abdomen below testaceous. Supra-anal lamina narrow, transverse. Sub-genital lamina much produced, longer than broad, triangular. Cerci stout, hirsute. Styles ? Legs testaceous; front femora armed after type B.

♀. Similar to the ♂. Sub-genital lamina ample, rounded, testaceous, with a dark fuscous blotch in its centre.

20. Margattea nimbata Shelford.

Phyllodromia nimbata Shelf. A. M. N. H. (7), Vol. XIX (1907), p. 31.

Pulau Tello, Batu Islands, 2 ♂♂, 1 ♀; Siberut, 14 ♂♂, 15 ♀♀; Sipora, 30 ♂♂, 27 ♀♀; N. Pagi, 9 ♂♂, 3 ♀♀.

This species, originally described from Sarawak, is common in the Malay Peninsula. I have already recorded it from Singapore (J. Malayan Branch, R. A. S., Vol. I, p. 410 (1923)), but have taken it also on Kedah Peak, 4,000′, Nov. 1915, on Gunong Kledang, Perak, 2,646′, Nov. 1916, and on Penang Hill, 2,000′, May 1917. Additional localities are: Kota Tinggi, Johore (V. Knight, Aug. 1917); Tamang, Pahang, 3,500′ (H. M. Pendlebury, June 1923), Kuala Lumpur (H. M. Pendlebury, April 1924), Patalung, Peninsular Siam (I. H. N. Evans, May 1924). Also taken in Sumatra, *viz.* at Medan and Tjinta Radja (E. Mjöberg, 1919—1921), and at Wai Lima, Lampong (Karny and Siebers, Nov.—Dec. 1921).

Shelford, in his later papers, seemed to regard this species as synonymous with *P. ceylonica* Saussure, but having not seen the type of this latter species I cannot express an opinion.

21. Margattea anceps Krauss.

Blatta anceps Krauss. Semon's Zool. Forsch. Austral. u. Mal. Arch., Vol. V, p. 749 (1903).

Phyllodromia anceps Shelford. Gen. Ins. fasc. 73, p. 14 (1908).

Phyllodromia nigro-vittata Hanitsch. Sarawak Mus. J., Vol. III, p. 88 (1925).

Siberut 2 ♂♂, 4 ♀♀; Sipora 1 ♂.

Krauss described this species originally from Tjibodas, Java, and I recorded it (loc. cit.), but unfortunately under a new name, from Mt. Murud, Sarawak, from Singapore, and Bukit Kutu, Selangor, 3,457′. I also took it on Penang Hill (May 1917) and Gunong Angsi, Negri Sembilan, 2,000′ (April 1918).

Corrected description of the venation:

Tegmina: radial vein single; 14 costals; 8 longitudinal discoidal sectors; 5 anals.

Wings: mediastinal vein with 2 branches; radial vein single; median vein simple, almost straight; 10 costals, the first six with their apices clavately incrassated; ulnar vein with 5 terminal branches; apical triangle well developed.

22. Margattea argentea n. sp.

Siberut, 5 ♂♂, 4 ♀♀; Sipora, 4 ♂♂, 3 ♀♀; N. Pagi, 1 ♂.

♂. Silvery grey.—Head exposed, light testaceous; 4 dark cross bands on the face, the first, narrow and black, above the antennal sockets, the second, broader and chestnut, between the antennæ, the third and fourth, also broad and chestnut, below; eyes moderately far apart; antennæ exceeding the tegmina, light testaceous. Pronotum sub-oval, broad; disk testaceous, with brownish dots and vermiculations, lateral margins broad, hyaline. Tegmina exceeding the body by nearly $\frac{1}{3}$ of their length, hyaline, pale grey suffused; mediastinal area broad, granular; costal area almost half the width of the tegmen, radial vein simple, 12 costals, 7 longitudinal discoidal sectors; anal sulcus pronounced, extending to one-third of the sutural margin; 5 anals, in reflected light appearing as interrupted silvery white lines; distal third of the tegmina with broad brownish cross venules. Wings clear hyaline, mediastinal vein long, extending considerably beyond one-half of the costal border, bifurcate, ends incrassated; 8 costals, the first five with their ends incrassated; median vein simple, straight; ulnar vein 4-ramose; apical triangle conspicuous, a greyish blotch just behind it; 1st axillary 4-ramose. Abdomen below testaceous, a large black blotch in its centre, each segment with a pair of submarginal brown maculæ. Supra-anal lamina triangular. Sub-genital lamina rounded, half as long as broad. Cerci testaceous, apex and a subterminal spot black. Two styles, symmetrical, testaceous. Legs pale testaceous, with black spots at the base of the tibial spines; front femora with about 4 spines near the middle of the anterior margin, followed distally by a series of piliform spines (type B); posterior femora with 4 spines both on the anterior and posterior margins.

♀. Similar to the ♂. A longitudinal black streak on the sub-genital lamina.

♂ and ♀. Total length 11 mm.; body 8 mm.; pronotum 2 × 3 mm.; tegmina 9·5 mm.

23. Margattea aurea n. sp.

Pulau Tello, Batu Islands, 1 ♂♂; Siberut, 3 ♀.

♂. Golden orange.—Head exposed, orange; eyes moderately far apart; antennæ exceeding the tegmina, first two joints orange, succeeding joints fuscous, lighter distally. Pronotum sub-ovoid, posteriorly slightly produced; disk orange, lateral margins broad, hyaline. Tegmina much exceeding the body; mediastinal area and outer portion of costal area hyaline, almost colourless, remainder pale golden orange; radial vein simple, 9 costals, the first seven simple, the 8th multi-ramose, the 9th bifurcate; 8 longitudinal discoidal sectors; 5 anals. Wings with the costal portion deep golden orange; all veins, from the mediastinal to the 1st axillary, golden orange, the other axillary veins fuscous; mediastinal vein bifurcate, the inner branch bifurcating once more and reaching much beyond the middle of the anterior border; radial vein simple; 6 costals, the first three simple, their ends incrassated, the last three ramose, not incrassated; median vein simple, only slightly sinuous; ulnar 5-ramose; apical triangle only moderate; 1st axillary 4-ramose. Abdomen below dull orange. Supra-anal lamina narrow, transverse. Sub-genital lamina transverse, twice as broad as long. Cerci unusually long, deep orange. Styles short, stout. Legs testaceous to orange, strongly armed; front femora proximally with a few large spines, followed distally by a series of piliform spines (type B).

♀. Similar to the ♂, but the wings without the golden orange, only the incrassated ends of the costals pale orange.

		♂	♀
Total length	...	17 mm.	17 mm.
Body ...	...	11 mm.	12·5 mm.
Pronotum	...	3 × 4 mm.	3·5 × 4·5 mm.
Tegmina	...	14 mm.	13 mm.

24. Margattea maculata n. sp.

Siberut, 3 ♂♂, 2 ♀♀; N. Pagi, 1 ♂, 1 ♀.

♂. Head exposed, testaceous, with a dark macula on the forehead between the eyes; antennæ exceeding the tegmina, fuscous, basal joints testaceous. Pronotum sub-oval; disk testaceous, with dark brown vermiculations, reminding of *M.* (*Phyllodromia*) *nimbata* Shelf., but more complicated; lateral margins broad, hyaline. Tegmina much exceeding the abdomen, pale testaceous to hyaline, with three small, dark blotches, *viz.* one just outside the anal sulcus, a second near the centre of the tegmen, a third on the front margin near the apex; 11 costals, the first nine simple, the 10th bifurcate,

the 11th multi-ramose; 5 longitudinal discoidal sectors, 5 anals. Wings hyaline, slightly fuscous; mediastinal vein bifurcate; 9 costals, the first five with their ends incrassated, silvery in colour, forming a whitish transparent patch; the 6th and 7th costals not incrassated, dark fuscous, the 8th bifurcate, the 9th multi-ramose; median vein simple; ulnar multi-ramose, cross venules strongly marked; apical triangle present; 1st axillary with 5 branches. Abdomen above almost black; below testaceous, fuscous towards the middle. Supra-anal lamina large, rounded, entire. Cerci very long, testaceous. Styles symmetrical, testaceous. Legs testaceous; front femora on the anterior margin with 6 large spines, followed at the extreme end by a series of very minute piliform spines (type B.).

♀. Similar to the ♂. Supra-anal lamina narrow, entire. Sub-genital lamina ample, rounded, dark testaceous.

♂ and ♀. Total length 11·5 mm.; body 8 mm.; pronotum 2 × 3 mm.; tegmina 9·5 mm.

The dark maculæ on the tegmina are not always equally well marked; this first of them, close to the anal sulcus, seems constant, but of the other two, one or both may be absent. However, the silvery patch just beyond the middle of the front margin of the wings seems constant and very characteristic.

Closely allied to *M.* (*Phyllodromia*) *anceps* Krauss, from Sarawak and the Malay Peninsula. Differs by its smaller size, the smaller number of discoidal sectors, and the silvery patch in the costal margin of the wings.

25. Margattea vermiculata n. sp.

Siberut, 3 ♀♀.

♀. Small.—Head slightly exposed, vertex castaneous, front testaceous, with a few indistinct darker cross bars; eyes far apart; antnenæ fuscous. Pronotum large, sub-oval, broadest behind the middle, posterior margin almost straight; disk testaceous, with fuscous vermiculations; lateral margins broad, hyaline. Tegmina just exceeding the body, semi-hyaline, pale testaceous, costal margin broad, 11 costals, 5 longitudinal discoidal sectors, anal sulcus well marked, 4 anals. Wings infuscated, mediastinal vein simple, radial vein simple, straight, 7 costals, of which the 5th is bifurcate, the 7th ramose, the first five terminally incrassated; median vein simple, straight; ulnar vein 4-ramose; apical triangle present; 1st axillary 5-ramose. Abdomen below testaceous with broad black lateral margins, centre of sternites darker. Supra-anal lamina rounded, entire. Sub-genital lamina ample, black for the greater part. Cerci (mutilated) fuscous. Legs pale testaceous; front femora with two large spines, followed by a long series of minute piliform spines (Type B.); hind femora weakly spined.

♀. Total length 9 mm.; body 8 mm.; tegmina 6·8 mm.

26. Chorisoblatta megaspila Walker.

Blatta megaspila Walker, Cat. Blatt. B. M., p. 98 (1868).

Hitherto recorded from Java and Sarawak only, but also occurs on the Malay Peninsula, *viz.* Kuala Tahan, Pahang (H. M. Pendlebury, Dec. 1921), and Batang Padang, Perak, 1,800′ (do., June 1923).

27. Chorisoblatta diagrammatica Hanitsch.

Phyllodromia diagrammatica Hanitsch. Trenbia, Vol. III, pp. 198—200, fig. 1 (1923); Journ. Mal. Br., R. A. S., Vol. I, pp. 404—406, figs. 6—8 (1923).

Siberut, 3 ♂♂, 1 ♀.

The oblique discoidal sectors of the tegmina, ten in number, and the armature of the front femora after type B, bring this species under the present genus. I first described this insect from an example of doubtful origin in the Buitenzorg Museum, but have since recorded it from Singapore and Kuala Lumpur. It also occurs in Sumatra, *viz.* Pakan Baroe (I. B. Corporaal, Dec. 1919), and Medan (E. Mjöberg, 1919—1921).

The one ♀ from Siberut bears an ootheca, suture uppermost.

28. Chorisoblatta karnyi n. sp. (pl. I, fig. 8).

Siberut, 1 ♀.

♀. Large, marmorate.—Head much exposed, testaceous, on the occiput a longitudinal broad black streak, narrowing on the vertex, widening out again on the forehead and spreading out into a black patch with 5 short finger-like processes; from the antennal sockets downwards another broad irregular streak, ending in the labrum; eyes one-third the width of the head apart; antennæ (partly mutilated) rufous. Pronotum broad, sub-oval, greatest width behind the middle, anterior border straight, posterior border almost so; disk testaceous, with an intricate design in black and white (*see* pl. I, fig. 8); lateral margins very broad, hyaline; posterior border narrow, black. Tegmina much exceeding the abdomen, broad; mediastinal area broad, hyaline, whitish; remainder of the tegmina also hyaline, whitish, but everywhere, except in the proximal and anterior part of the costal area, with closely packed masses of small brown patches which may be square, oblong or irregular, the total producing a dead-leaf like appearance; 10 costals, the first seven simple and strongly marked in brown, the others ramose, thin, white; about 11 oblique discoidal sectors; anal sulcus well marked, with brown lines on either side; 7 anals. Wings slightly fuscous, veins stout, castaneous; mediastinal vein long, bifurcate, reaching to the middle of the costal border; radial vein bifurcate at $\frac{2}{3}$ from its origin; 7 costals, the first six simple, clavate, the 7th ramose; posterior branch of the radial also ramose; median vein simple, slghtly sinuous; ulnar vein multi-ramose; apical triangle moderate; 1st axillary 4-ramose. Abdomen above dark fuscous to

black, shining; below deep black, each segment with a pair of large, sub-marginal fulvous patches, and a narrow, whitish border. Supra-anal lamina rounded. Sub-genital lamina ample, round, fulvous, with a large central dark patch. Cerci long, with unusually long setæ; dark brown to black, lighter in the middle. Coxæ testaceous; femora black above, testaceous below; tibiæ with alternatina black and white cross bands; anterior femora proximally with a few large spines, followed distally by a series of minute piliform spines (type B).

♀. Total length 18 mm.; body 13·5 mm.; pronotum 4 × 6 mm.; tegmina 14 mm.

Allied to *Blatta polygrapha* Walker, from Chantabun, Siam, the type (♀) of which is in the Oxford Museum, and to *Blatta megaspila* Walker, of which this Museum contains an example from Sarawak which Shelford had compared with the type, from Java, in the British Museum. Both these species have now to come under *Chorisoblatta*. But though *C. megaspila*, and still more *C. polygrapha*, show a striking similarity to *C. karnyi* in the markings both of the pronotum and of the tegmina, yet *C. polygrapha* is readily distinguished by the markings of its head which run transverse, not longitudinal as in *C. karnyi*, whilst in *C. megaspila* we find two narrow longitudinal lines on the occiput which join on the vertex and are continued down the face as a broad chestnut band with irregular outlines.

29. Liosilpha angustior n. sp.

Pulau Tello, Batu Islands, 5 ♂♂, 13 ♀♀; Sipora, 2 ♂♂ 10 ♀♀.

♂. Head somewhat exposed, orange, three longitudinal darker lines on the vertex, a few indistinct bands across the face; eyes moderately far apart; antennæ much exceeding the body, testaceous. Pronotum broad, sub-oval, posterior margin slightly produced; disk dull orange, with a few dark scattered spots; lateral margins broad, hyaline. Tegmina exceeding body and cerci, pale testaceous, sub-hyaline; costal area broad, nearly one half the width of the tegmen; 11 costals, the 10th and 11th ramose; 6 longitudinal discoidal sectors; anal sulcus faintly orange, 5 anals. Wings hyaline, mediastinal vein bifurcate, ends swollen; 8 costals, the 7th and 8th ramose, the first six terminally much swollen; median vein simple, straight; ulnar vein ramose, ending in 6 branches; apical triangle conspicuous; 1st axillary 4-ramose. Abdomen above testaceous, with fuscous blotches, below testaceous, with a large black central blotch. Supra-anal lamina triangular. Sub-genital lamina ample, rounded, testaceous, with a central, elongated darker blotch. Cerci dull orange, with black markings. Two styles, symmetrical. Legs testaceous; front femora with the proximal ⅓ of

the anterior border bare, remainder with comparatively large spines which decrease in size distally (type A); posterior femora strongly armed.

♀. Similar to the ♂. Supra-anal lamina rounded, entire. Sub-genital lamina ample, rounded, testaceous, with a large black macula of varying shape, Λ or ⋏ or ⅄.

		♂	♀
Total length	...	14 mm.	10·5 mm.
Body	...	11 mm.	7·5 mm.
Pronotum	...	3 × 4 mm.	3 × 4 mm.
Tegmina	...	11.5 mm.	8 mm.

Differs from *L. lata* mihi, from Sarawak and the Malay Peninsula, by being much less broad, the pronotum measuring only 4 mm. in width, as against 6 mm. in *L. lata*.

There is only little necessity for the genus *Liosilpha*. The longitudinal discoidal sectors of its tegmina, and the armature of its front femora after type A should bring it under *Neoblattella* Shelford.

30. Pseudophyllodromia laticeps Walker.

Blatta laticeps Walker, Cat. Blatt. B. M., Suppl., p. 142 (1869).

Pulau Tello, Batu Islands, 1 ♂; Siberut, 15 ♂♂, 4 ♀♀; Sipora, 5 ♂♂, 5 ♀♀; N. Pagi, 1 ♂, 1 ♀.

Recorded from the Malay Peninsula, Borneo and Sumatra, but not yet from Java.

EPILAMPRINÆ

31. Homalopteryx karnyi n. sp. (pl. II, figs. 1 and 2).

North Pagi, 3 ♂♂, 5 ♀♀; Siberut, 3 ♀♀; Sipora, 4 ♂♂, 1 ♀.

♂. Head covered; occiput castaneous, vertex testaceous, front testaceous, with an urn-shaped chestnut marking; antennæ equalling the body, fuscous. Pronitum large, anterior margin parabolic, posterior margin sub-truncate, slightly sinuous; centre of disk reddish testaceous, behind and at the sides enclosed by a broad black line, in front by a diffused castaneous blotch; lateral margins hyaline, with large, dark orange dots. Tegmina as long as the abdomen, pellucid testaceous, with a few irregular brownish maculæ chiefly along the ulnar vein; serio-punctate, the punctures in the anal area being especially large and margined with brown. Wings hyaline, with a few dark maculæ near the apex. Abdomen below testaceous, heavily mottled with black, except at the sides. Supra-anal and sub-genital laminæ both slightly bilobate. Cerci and styles symmetrical, testaceous. Legs reddish testaceous, heavily spined;

posterior metatarsus somewhat shorter than the succeeding joints, spined, the pulvillus occupying one-third its total length; remaining tarsal joints unarmed; arolia present.

♀ differs from the ♂ by its larger size and by the tegmina being truncate, reaching to the middle of the 2nd abdominal segment only; wings much reduced, only 4 mm. in length, venation obscure; supra-anal lamina bilobate, sub-genital lamnia entire.

		♀	♂
Total length	...	25 mm.	28 mm.
Pronotum	...	7 × 9·5 mm.	8·2 × 11 mm.
Tegmina	...	19 mm.	8 mm.

The Oxford Museum contains an example, ♀, of a closely allied species, not named, from Kalim Bungo, Nias, collected by R. Mitschke, 1896, and acquired from van der Poll. It differ from *H. karnyi* as follows: disk of the pronotum black throughout; tegmina at their apex rounded, not truncate, and reaching to the middle of the 4th abdominal segment, and coloured rufous chestnut, except at the costal margin and at the apex; total length 29 mm; pronotum 8·5 × 13 mm.; tegmina 13 mm. I propose for this species the name of

Homalopteryx mitschkei n. sp.

32. Pseudophoraspis nebulosa Burmeister.

Epilampra nebulosa Burm. Handb. Entom., Vol. II, p. 505 (1838).

Pulau Tello, Batu Islands, 3 ♂ ♂, 1 ♀; Siberut, 3 ♀ ♀; Sipora, 6 ♀ ♂, 6 ♀ ♀; N. Pagi, 2 ♂ ♂, 1 ♀; Padang, 1 ♂.

Common throughout the Malaysian sub-region.

33. Rhabdoblatta procera Brunner.

Epilampra procera Brunner Syst. Blatt., p. 192 (1865).

Siberut, 1 ♂.

Brunner's description of the ♀ only may be supplemented by that of the ♂, from Siberut, as follows:

♂. Considerably smaller than the ♀.—Head exposed, testaceous, vertex finely impresso-punctate; eyes moderately far apart; antennæ fuscous, reaching nearly to the apex of the tegmina. Pronotum sub-oval, much produced behind, greyish—testaceous, densely impresso-punctate, with a narrow testaceous border. Tegmina exceeding the abdomen by ¼ of their length, narrow, rufo-testaceous, clouded with castaneous, impresso-punctate chiefly in the mediastinal and anal areas. Wings testaceous, costal margin and apex suffused with castaneous. Abdomen above flavo-testaceous, below with a few scattered black spots in addition. Supra-anal lamina bilobed, sub-genital lamina rounded, twice as

broad as long. Cerci black. Styles yellowish, somewhat asymmetrical, the left nearer to the middle line. Legs flavo-testaceous; front femora with 4 stout spines on the anterior margin followed by about 8 minute piliform spines 5 stout spines on the posterior margin, mid and hind femora both with 3 spines on the anterior margin, 4 on the posterior.

♂. Total length 26 mm.; body 19 mm.; pronotum 5×6 mm.; tegmina 22 mm.

Distribution.—Tis species had curiously enough so far been recorded from Java, Borneo, Sumatra and Nias only, though it is common throughout the Malay Peninsula. The British Museum contains specimens from Singapore (H. N. Ridley, 1897) and Batu Pahat, Johore (H. N. Ridley, 1901), whilst in collections from the F. M. S. Museums I have seen examples from the following localities: Changkat Mentri, Bernam, Perak (C. B. Kloss, Sept. 1918), Ampang Forest Reserve, Selangor (H. C. Abraham, Oct. 1920), Gunong Tahan, 3,300′ (J. Bangga, Nov. 1920), Kuala Tahan, Pahang (H. M. Pendlebury, Nov. 1921), Nakon Sri Tamarat, Klawng Tadi, Peninsular Siam (H. M. Pendlebury, April 1922), and Kuala Lumpur (E. Seimund, Feb. 1924).

34. Epilampra lyrata Hanitsch (pl. II, fig. 3).

J. Malayan Branch, R. A. S., Vol. I, p. 430 (1923).

Pulau Tello, Batu Islands, 3 ♂♂; Siberut, 5 ♂♂, 9 ♀♀; Sipora, 2 ♂♂, 4 ♀♀; N. Pagi, 5 ♀♀.

The type (♀) of this species came from Gunong Angsi, Negri Sembilan. As the present collection contains examples of both sexes, I can add the description of a ♂.

♂. Smaller than the ♀.—Head exposed, its testaceous ground colour much obscured by black markings, *viz.* on the vertex by 4 broad longitudinal lines, the two median ones uniting on the face to form a large black patch which below the antennary sockets spreads out on either side in semi-lunar fashion; eyes far apart; antennæ much exceeding the body, dull castaneous. Pronotum parabolic in front, produced behind; disk light castaneous, with diffused black blotches (in the type ♀, from Negri Sembilan, roughly in the shape of a lyre); anterior and lateral margins broad, orange-testaceous, with numerous black dots and blotches. Tegmina exceeding the abdomen by $\frac{1}{3}$ their length, deep castaneous, with lighter ocelliform spots chiefly along the costal margin and apex. Wings with the anterior portion deep orange, with blackish blotches near the apex; posterior portion fuscous, veins orange. Abdomen below testaceous, thickly spotted with black. Supra-anal lamina large, rounded, slightly bilobed. Sub-genital lamina rounded, entire, twice as broad as long, dark castaneous. Cerci testaceous, tips black. Styles symmetrical, testaceous. Legs very light castaneous, mid and hind coxæ spotted with black; front

femora on the anterior margin with 5 large spines, followed by a close series of piliform spines; posterior margin with 4 large spines; mid and hind femora with 4 spines both on the anterior and the posterior margins; all genicular spines present; posterior metatarsus much longer than the remaining joints taken together, spined throughout its length; second and third tarsal joints also spined.

♂. Total length 24 mm.; body 21 mm.; pronotum 6 × 7 mm.; tegmina 20 mm.

♀ (both Negri Sembilan and Mentawi): total length 28 mm.; body 25 mm.; pronotum 6·5 × 8 mm.; tegmina 23 mm.

Distribution.—Besides Mentawi Is. and Negri Sembilan, also Kota Tinggi, Johore (1 ♀, V. Knight, August 1917).

35. Epilampra communis n. sp.

Pulau Tello, Batu Islands, 4 ♂♂, 2 ♀♀; Siberut, 57 ♂♂, 98 ♀♀; Sipora, 41 ♂♂, 112 ♀♀; N. Pagi, 10 ♂♂, 22 ♀♀. A total of 346 specimens!

♂. Rusty orange.—Head exposed, testaceous, three or four longitudinal, broken, chestnut lines on the vertex, and scattered chestnut dots on the face; eyes far apart; antennæ testaceous, reaching to the apex of the tegmina. Pronotum parabolic in front, produced and angulate behnid, lateral margins slightly inverted; smooth, testaceous, closely spotted with small and large chestnut dots, a more regular row of large spots along the posterior margin. Tegmina exceeding the body by $\frac{1}{4}$ of their length, in transmitted light very pale testaceous, with numerous large and small rusty orange blotches, a series of darker irregular spots along the costal margin; mediastinal and anal areas impresso-punctate, remainder of tegmina with only faint punctures; 11 costals, anal sulcus reaching to 2/5 of the length of the sutural margin; about 10 anal veins. Wings hyaline, veins orange, costal margin opaque. Abdomen below orange testaceous, with small, scattered chestnut dots. Supra-anal lamina bilobed. Sub-genital lamina large, triangular, a sinus on either side from which the styles arise. Cerci orange, with black tips. Styles orange. Legs orange testaceous, mid and hind coxæ with small chestnut dots; front femora with 4 spines in the middle of the anterior margin, distally followed by a series of minute piliform spines; posterior margin with 3 spines. Posterior metatarsus much longer than the succeeding joints, spined in its total length; 2nd and 3rd tarsal joints also spined.

♀. Larger and darker than the ♂, especially the abdomen below much darker, with numerous small and large black spots. Eyes even further apart than in the ♂.

		♂	♀
Total length	...	25 mm.	28 mm.
Body	...	19 mm.	23 mm.
Pronotum	...	5·5 × 6·5 mm.	7 × 8 mm.
Tegmina	...	20 mm.	24 mm.

Closely allied to *E. intermedia* mihi, from Sarawak, of which, howevere, I known the ♀ only. (Sarawak Mus. J., Vol. III, p. 95 (1925)). The Sarawak form is readily distinguished by the two black blotches on its face, one between the lower half of the eyes, and the other between the antennal sockets and the labrum. Also the underside of the abdomen is much darker there than in *E. communis*.

Also allied to an unnamed species from Kalim Bungo, Nias (R. Mitschke, 1896), of which the Oxford Museum contains 5 ♀ ♀ examples. However, the Nias form (♀) is lighter in colour than the ♀ of *E. communis*, in fact, it shows quite the rusty orange tint of the ♂ of the latter species.

36. Epilampra mentawiensis n. sp. (pl. II, fig. 4).

Siberut, 2 ♀ ♀ ; Sipora, 2 ♀ ♀ ; N. Pagi, 1 ♂ .

♂ . Large, castaneous.—Head exposed, dull testaceous, a large squarish blotch of dark castaneous on the upper part of the face; eyes far apart; antennæ exceeding the tegmina, dull castaneous. Pronotum with the anterior margin parabolic, posterior margin produced and obtusely angled; smooth in front, with a few transverse corrugations; disk shining, uniform dark castaneous; lateral margins dark orange, spotted with castaneous. Tegmina exceeding the abdomen by about 1/7 of their length; rufous castaneous, with pale ocelliform spots; mediastinal area pale orange, spotted; remainder impresso-punctate, most so in the anal area, the punctures disappearing towards the apex of the tegmina. Wings orange, costal area deep orange. Abdomen below uniform reddish castaneous. Supra-anal lamina bilobed. Sub-genital lamina ample, triangular. Cerci dull orange. Styles large, yellowish, semi-transparent. Legs castaneous; front femora on the anterior margin with 5 stout spines; followed by a series of minute piliform spines; 3 spines on the posterior margin; mid and hind femora with 3 spines on the anterior margin, 4 on the posterior; posterior metatarsus longer than the remaining joints, spined to nearly its end, pulvilli small; 1st and 2nd tarsal joints also spined.

♀ . Similar to the ♂ , slightly larger. Supra-anal lamina bilobed. Sub-genital lamina ample, rounded.

		♂	♀
Total length	...	44 mm.	47 mm.
Body	...	38 mm.	40 mm.
Pronotum	...	10 × 13 mm.	11 × 14 mm.
Tegmina	...	35 mm.	39 mm.

Allied to *E. ridleyi* Kirby, from Singapore, and *E. saravacensis* Shelford, from Borneo and the Malay Peninsula. The former is of the same size (*viz.* ♀ 47 mm.), but its head is brownish chestnut above, passing into yellowish tawny below, and its pronotum is reddish brown, darker in the centre, with black, shallow punctures.

E. saravacensis is somewhat larger (♀ 56 mm.), its head is uniform rufo-castaneous and the pronotum dull orange, closely spotted with rufo-castaneous.

37. Rhicnoda rugosa Brunner.

Ann Mus. Genova (2), Vol. XIII, p. 31 (1893).

Pulau Tello, Batu Islands, 1 ♀; Siberut, 10 ♂♂, 3 ♀♀; Sipora, 6 ♂♂; N. Pagi, 7 ♂♂.

Common in all parts of the Malaysian sub-region, also recorded from Pegu, Tenasserim and Halmahera. None of the numerous ♂♂ of the collection show a trace of tegmina and wings, nor do so the exomples in the Oxford Museum, nor the various other collections I have examined. I regard this species as entirely apterous, though Shelford in "Genera Insectorum", Epilamprinæ, p. 9, defines the genus as with "tegmina and wings fully developed in ♂".

BLATTINÆ

38. Dorylæa flavicincta de Haan.

Periplaneta flavicincta de Haan. Temminck, Verh. Orth., p. 50 (1842).

Siberut, 1 ♂, 2 ♀♀.

Known from all parts of the Malaysian sub-region, also from Formosa and Madagascar.

39. Dorylæa pallipalpis Serville.

Kakerlac pallipalpis Serville. Hist. Nat. Ins., Orth., p. 71 (1839).

Periplaneta pallipalpis Brunner. Syst. Blatt., p. 238 (1863). Saussure: Mém. Soc. Genève, Vol. XX, p. 262 (1869).

Methana pallipalpis Kirby. Syn. Cat. Orth., Vol. I, p. 136 (1904).

? *Methana pallipalpis* Shelford. T. E. S., 1909, p. 309; Gen. Ins. fasc. 109, p. 11 (1910).

Methana pallipalpis Hanitsch. J. Straits B., R. A. S., No. 69, p. 100 (1915); J. Malayan B., R. A. S., Vol. I, p. 434 (1923); Sarawak Mus. J., Vol. III, p. 94 (1925).

Sipora, 1 ♀.

As I have pointed out in J. Malayan B., R. A. S., Vol. I, p. 434, the proper place of this species is under *Dorylæa* Stål, though Kirby, and Shelford doubtfully so, had referred it to *Methana* Stål. *Methana* has the posterior metatarsus spined beneath, and shorter, or not longer, than the remaining joints which are unarmed beneath, whilst in *Dorylæa* the posterior metatarsus, also spined, exceeds the succeeding joints in length, of which the second is armed, and the third unarmed.

The single ♀ from Sipora may be described as follows:

♀. Head exposed, vertex piceous, shading into dark castaneous on the front; clypeus light castaneous; basal joints of labial palps shining black, terminal joint fusco-castaneous; eyes far apart; antennæ exceeding the tegmina, first 12 joints black, turning into rufous. Pronotum large, broad, shining castaneous, anterior margin parabolic, posterior margin slightly rounded. Tegmina broad and short, just exceeding the abdomen, but reaching to the middle of the cerci only; shining castaneous. Wings with the anterior part yellowish in the front margin, rest fuscous. Body below dark castaneous; posterior border of 7th abdominal segment in either side with a depression. Supra-anal lamina triangular, its centre with a deep, oval incision. Valves shining black, punctured. Cerci long and broad, shining black. Legs castaneous, strongly armed; posterior metatarsus exceeding the remaining joints in length, armed; 2nd tarsal joint armed, equal in length to the 3rd and 4th combined, which are not armed (left hind leg with 5 tarsal joints, right with 4 only).

♀. Total length 22 mm.; body 21 mm.; pronotum 7·5 × 9·5 mm.; tegmina 15·5 mm.

Distribution: The whole of the Malaysian sub-region, also Talaut, Ceram and Australia.

40. Periplaneta australasiæ Fabricius.

Blatta australasiæ Fab. Syst Ent., p. 271 (1775).

Sipora, 6 ♂ ♂, 4 ♀ ♀, and 2 ♂ ♂ larvæ.

Cosmopolitan.

41. Periplaneta montana Hanitsch.

Journ., Malayan Branch, R. A. S., Vol. I, p. 440, figs. 25 and 26 (1923).

Pulau Tello, Batu Islands, 1 ♂; Siberut, 2 ♂ ♂; Sipora, 5 ♂ ♂ 5 ♀ ♀; N. Pagi, 1 ♂.

I first described this species from Gunong Kledang, Perak, 2,646′, and Bukit Kutu, Selangor, 3,457′, but have since seen examples from Kuala Teku, Pahang (F. M. S. Museums, 1920), Sungei Tengah, Lower Perak (H. C. Robinson and E. Seimund, Oct. 1921), Bukit Kutu, Selangor, 3,500′ (H. M. Pendlebury, April 1926), Wai Lima, Lampong, S. Sumatra (Karny and Siebers, Nov.—Dec. 1921), and Gunong Singgalang, Sumatra, 1,800 m. E. Jacobson, July 1925).

42. Stylopyga picea Brunner.

Periplaneta picea Brunner. Syst. Blatt., p. 223 (1865).

Siberut, 1 ♂, 2 ♀ ♀; Sipora, 1 ♀.

This species has a wide range: Nicobars, Lower Siam, Malay Peninsula, Singapore, Borneo, Verlaten I., Krakatau; Also Padang, in W. Sumatra (Berlin Museum, S. G. Schoede, Dec. 1908), though not yet recorded from Java.

43. Stylopyga atrox n. sp. (pl. II, fig. 5).

Sipora, 1 ♀ .

Entirely black, shining.—Head exposed, eyes far apart, antennæ black, fuscous towards the end. Pronotum large, anterior margin parabolic, posterior margin truncate; with 3 faint depressions, *viz.* two near the posterior border, one in front of them. Metanotum with the posterior border deeply excised, lateral angles much produced backwards. Tegmina squamiform, meeting in the middle line and reaching to the posterior border of the first tergite; their sides rounded off, exposing the postero-lateral lobes of the metanotum; deeply punctured; anal sulcus prominent, anal veins faintly indicated. Wings absent. Tergites smooth, shining, only the 6th and 7th with fine punctures; posterior angles drawn out into spines which increase in size from before backwards. Supra-anal lamina (♀) sub-quadrate, a small median triangular portion not chitinised, pale, giving to the lamina a bi-lobed appearance. Sternites smooth, shining. Cerci black, flattened, spatula-like. Legs black, only tarsus and claws castaneous; strongly armed; posterior tibiæ with spines on outer margin 3-seriately arranged; posterior metatarsus as long as, or only slightly shorter than the remaining joints, spined; 1st and 2nd tarsal joints also spined; pulvilli minute; arolia present.

♀ . Total length 27 mm.; pronotum 9 × 12 mm.; tegmina, length 9 mm., width 7·5 mm.

Differs from *S. picea* Brunner and *S. semoni* Krauss chiefly by its tegmina which are twice as large, with the anterior border rounded off, posterior border straight.

44. Homalosilpha ustulata Burmeister.

Periplaneta ustulata Burm. Handb. Entom., Vol. II, p. 503 (1838).

Siberut, 3 ♂ ♂ larvæ.

Common throughout the Malaysian sub-region.

PANCHLORINÆ

45. Pycnoscelus surinamensis Linné.

Blatta surinamensis L. Syst. Nat. (ed. X), Vol. I, p. 424 (1758).

Pycnoscelus obscurus Scudder. Boston I. Nat. Hist., Vol. VII, p. 424 (1862).

Panchlora (sub-genus *Leucophæa*) *surinamensis* Brunner, Syst. Blatt., p. 278 (1865).

Leucophæa surinamensis auct.

Siberut, several ♂ ♂ and ♀ ♀ ; Sipora, ♂ ♂ and ♀ ♀ ; Padang, West Sumatra, ♂ ♂ and ♀ ♀ .

Ranging throughout the tropics both of the Old and the New World.—The name *Pycnoscelus* Scudder is now generally accepted in place of *Leucophæa* Brunner, being older by a few years.

CORYDINÆ

46. Homopteroidea nigra Shelford.

Trans. Ent. Soc., London, 1906, p. 274.

Siberut, 1 ♀ .

Shelford first described this species from Kuching, Sarawak (type, ♀ , in the Oxford Museum), and recorded it later on also from Sumatra, from an example in the Paris Museum.—I. B. Corporaal took a specimen which I have seen at Sibolangit, Sumatra, July 1920.

47. Ctenoneura aberrans n. sp. (pl. II, figs. 8 and 9).

Siberut, 1 ♀ ; 1 sex ?.

♀ . Head covered, dark castaneous, shining; eyes far apart; antennæ fuscous, setiferous. Pronotum sub-circular, hind border straight; strongly rugose, disk almost black, margins fuscous. Tegmina somewhat exceeding the abdomen, elongate; anterior border slightly rounded, posterior border nearly parallel to it; brown, lighter towards the apex; veins well marked, raised; mediastinal vein single, ending at about 2/5 of the anterior border; radial vein bifurcate from near its origin, outer branch single, inner branch with about 3 indistinct costals, reaching only to $\frac{3}{4}$ of the anterior border; ulnar with 4 branches, curving and sweeping forwards, the first three ending in the anterior border, the last in the apex; cross venules distinct, irregular; anal sulcus thin, sharply defined; anal veins few and indistinct. Wings broad, fuscous; mediastinal vein short, simple; radial vein slightly sinuous; costals not distinguishable, in their place a dark fuscous blotch; median vein simple, sinuous; ulnar sinuous, with 3 curved, parallel branches; hind portion of the wing much smaller than the front portion, first axillary bifurcate, remaining axillaries few (2 ?). Abdomen below dark fuscous. Sub-genital lamina transverse, lozenge-shaped. Cerci long, about 6 joints, fuscous. Legs pale testaceous.

♀ . Total length 4·5 mm.

I established the genus *Ctenoneura* for two species of *C. major* mihi, from Mt. Murud, in which the branches of the ulnar

vein of the wings are comb-like arranged, after the pattern of *Euthyrshapha* Burmeister (Sarawak Museum Journal, Vol. III, p. 100 (1925)). The venation of the wings of *C. aberrans* agrees closely with that of the two species from Sarawak, except that the costals are much reduced and are replaced by two dark blotches. The venation of the tegmina, however, shows considerable difference. In the two Sarawak species the branching of the radial is normal, the costals, about 12, occupying the whole anterior portion of the tegmen up to the apex. The same vein is much reduced in the Mentawi species, the costals, 3 or 4, occupy only the middle portion of the anterior border, whilst the greater part of the tegmen is filled up by the branches of the ulnar, which sweep outwards and forwards.

A specimen I have here from Gunong Singgalang, W. Sumatra, 1,800 m. (E. Jacobson, 1925) agrees more with two Bornean species.

OXYHALOINÆ

48. Areolaria fieberi Brunner.

Syst. Blatt., p. 260 (1865).

Sipora, 1 ♀.

Hitherto recorded from Java and Penang only, to which localities I can add Medan, Sumatra, where Dr. Mjöberg took a ♂ (1919—1921).

49. Areolaria signata Shelford (pl. II, fig. 7).

Trans. Ent. Soc., London, p. 273 (1906).

Siberut, 2 ♀ ♀ ; Sipora, 1 ♂ , 1 ♀ ; N. Pagi, 1 ♂ .

Previously known from Borneo only, but since also taken at Lau Kahit, Sumatra, by I. B. Corporaal, Feb. 1918.

PERISHÆRINÆ

50. Perisphæria lucasiana Saussure and Zehntner.

Rev. Suisse Zool, Vol. III, p. 36 (1895).

Sipora, 1 ♂ , 4 ♀ ♀ ; N. Pagi, 1 ♀ .

So far recorded from Java and the Malay Peninsula only, but since taken by Dr. Karny and Mr. Siebers at Wai Lima, S. Sumatra, Nov.—Dec. 1921.

PANESTHINÆ

51. Panesthia javanica Serville.

Ann. Sci. Nat., Vol. XXII, p. 38 (1831).

Siberut, 4 ♂ ♂, 2 ♀ ♀; Sipora, 3 ♂ ♂, 3 ♀ ♀.

Most of the specimens taken, both mature and larvæ, were of a darker colour than is usual in such from Sumatra and the Malay Peninsula.

Ranging throughout the Malaysian sub-region, Burma, Lower Siam, Cambodia and Philippines.

52. Panesthia hilaris Kirby.

A. M. N. H. (7), Vol. XI, p. 413 (1903).

Siberut, 1 ♂.

This is apparently only the third record of this species. The type, ♀, in the British Museum came from Sandakan, B. N. Borneo, whilst I took a ♂ at Changi, Singapore, August 1896 (*see* J., Malayan Branch, R. A. S., Vol. I, pl. XIII, fig. 13 (1923), Kirby describes the tegmina as "yellowish hyaline, the basal third and a spot in the middle of the costa of the right tegmen, corresponding to a stripe on the left tegmen not reaching the inner margin". For this description, with its obvious hiatus, the following might be substituted: ttegmina with the basal third dark chestnut to black, followed by a broad fulvous vitta; distal half of the tegmina at first dark brown, towards the apex fading away into testaceous.—The ♂ from Mentawi differs from the ♀ type by being somewhat smaller, by distinct cornua on the pronotum, instead of rounded prominences, and by its colouring being more intense. The antennæ both of the ♂ and of the ♀ are marked by a subterminal yellow ring.

Total length of the ♂ type from Sandakan, 32 mm.; of the ♂ from Changi, Singapore, 30 mm.; of the ♂ from Mentawi 28·5 mm.

53. Panesthia polita Krauss.

Semon, Zool. Forsch. Austr. Mal. Arch., Vol. V, p. 754 (1903).

Sipora, 2 ♀ ♀.

Originally recorded from Tjibodas (Java) and Borneo. In J., Malayan Branch, R. A. S., Vol. I, p. 454 (1923), I described two Blattidæ, from Singapore and Perak respectively, under the names of *Dol:chosphæria arcuata* and *D. deplanata*. Both will probably have to be merged in the present genus and species. *Panesthia birmanica* Brunner, ♂, the type of which I have not seen, is apparently closely allied to this species. By the two small tubercles of its pronotum Brunner: ("tubercul:s binis centralibus vix distinguendis") it seems to be neraest to *D. deplanata* mihi.

The two examples from Sipora measure 24 mm. and 22 mm. respectively, the smaller being somewhat reddish in colour.

Other material of this species I have recently had the opportunity of examining, includes: 1 ♂ from Fort de Kock, Sumatra, 920 m., (E. Jacobson, 1925); 2 ♀ ♀ from Sumatra (von Studt, ex Berlin Museum); 2 ♀ ♀ from Changkat Mentri, Bernam, Perak (C. Boden Kloss, Sept. 1918); 1 ♂ from Nakon Sri Tamarat, Peninsular Siam (H. M. Pendlebury, March 1922), several ♂ ♂ and ♀ ♀ in the British Museum, from Baram, Sarawak (Charles Hose, 1908).

OXFORD, 15*th November*, 1927.

LIST OF THE MENTAWI BLATTIDÆ WITH THEIR GEOGRAPHICAL DISTRIBUTION

—	Mentawi Is.	Sumatra	Java	Borneo	Mal. Peninsula	Elsewhere
Ectobinæ						
p. .... *Theganopteryx apicigera* Walker	×	×	×	×	×	
... *Anaplecta javanica* Saussure	×		×		×	
... *Anaplectella smedleyi* n. g. and sp.	×					
... *Anaplectoidea saundersi* n. sp.	×				×	
Pseudomopinæ (=Phyllodromiinæ)						
p. ... *Pseudothyrsocera rubronigra* Hanitsch ...	×	×			×	
... *Ischnoptera klossi* n. sp.	×					
... ,, *nigra* n. sp.	×					
... *Blattella germanica* L. ...	×	×	×	×	×	Cosmopolitan
... ,, *ridleyi* n. sp. ...	×				×	
... ,, *tristis* n. sp. ...	×	×				
... *Neoblattella irregularifervittata* Brunner ...	×	×	×	×		
... *Neoblattella hewitti* Shelf., *fusca* n. sub-sp. ...	×	×				
... *Neoblattella digitata* n. sp.	×					
... ,, *latimarginata* n. sp.	×					
... *Margattea contigua* Walker	×			×		Siam N. Guinea; Kei Is.
... *Margattea humeralis* Walker	×	×			×	
... *Margattea latius-vittata* Brunner	×		×		×	Macassar

List of the Mentawi Blattidæ with their Geographical Distribution.—*Contd.*

—	Mentawi Is.	Sumatra	Java	Borneo	Mal. Peninsula	Elsewhere
p. ... *Margattea anceps* Krauss	×		×	×	×	
... *Margattea nimbata* Shelford	×	×		×	×	Peninsular Siam
... *Margattea argentea* n. sp.	×					
... ,, *aurea* n. sp. ...	×					
... ,, *maculata* n. sp.	×					
... ,, *vermiculata* n. sp.	×					
... *Chorisoblatta diagrammatica* Hanitsch ...	×	×	?		×	
... *Chorisoblatta megaspila* Walker	×		×	×	×	
... *Chorisoblatta karnyi* n. sp.	×					
... *Liosilpha angustior* n. sp.	×					
... *Pseudophyllodromia laticeps* Walker ...	×	×		×	×	
Epilamprinæ						
p. ... *Homalopteryx karnyi* n. sp.	×					
... *Pseudophoraspis nebulosa* Burm.	×	×	×	×	×	
... *Rhabdoblatta procera* Brunner	×	×	×	×	×	
... *Epilampra lyrata* Hanitsch	×				×	
... ,, *communis* n. sp.	×					
... ,, *mentawiensis* n. sp.	×					
... *Rhicnoda rugosa* Brunner	×	×	×	×	×	Pegu; Tenasserim; Halmahera

List of the Mentawi Blattidæ with their Geographical Distribution.—*Concld.*

—	Mentawi Is.	Sumatra	Java	Borneo	Mal. Peninsula	Elsewhere
Blattinæ						
p. ... *Dorylæa flavicincta* de Haan	×	×	×	×	×	Formosa; Madagascar
... *Dorylæa pallipalpis* Serville	×	×	×	×	×	Ceram; Australia
... *Periplaneta australasiæ* Fabricius	×	×	×	×	×	Cosmopolitan
... *Periplaneta montana* Hanitsch	×	×			×	
... *Stylopyga picea* Brunner	×	×	?	×	×	Nicobars
... ,, *atrox* n. sp. ...	×					
... *Homalosilpha ustulata* Burmeister ...	×	×	×	×	×	
Panchlorinæ						
p. ... *Pycnoscelus surinamensis* Linné	×	×	×	×	×	Cosmopolitan
Corydinæ						
p. ... *Ctenoneura aberrans* n. sp.	×					
... *Homopteroidea nigra* Shelford	×	×		×		
Oxyhaloinæ						
p. ... *Areolaria fieberi* Brunner	×	×			×	
... ,, *signata* Shelford	×	×		×		
Perisphærinæ						
p. ... *Perisphæria lucasiana* Saussure and Zehntner	×	×	×		×	
Panesthinæ						
p. ... *Panesthia javanica* Serville	×	×	×	×	×	Philippines; Cambodia; Burma
... ,, *hilaris* Kirby ...	×			×	×	
... ,, *polita* Krauss ...	×	×	×	×	×	

EXPLANATION OF THE PLATES

PLATE I.

Fig. 1. *Anaplecta javanica* Saussure ♂. Left wing. × 10.

Fig. 2. *Anaplectella smedleyi* n. g. and sp. ♂. Left wing. × 6.

Fig. 3. *Anaplectoidea saundersi* n. sp. ♂. Left wing. × 8.

Fig. 4. *Anaplectoidea saundersi* n. sp. ♀. Left wing. × 8.

Fig. 5. *Anaplectoidea saundersi* n. sp. ♂. Left tegmen. × 8.

Fig. 6. *Ischnoptera nigra* n. sp. ♂. Left wing. × 5.

Fig. 7. *Neoblattella digitata* n. sp. ♂. Pronotum. × 11.

Fig. 8. *Chorisoblatta karnyi* n. sp. ♀. Pronotum. × 9.

PLATE II.

Fig. 1. *Homalopteryx karnyi* n. sp. ♂. × $1\frac{1}{2}$.

Fig. 2. *Homalopteryx karnyi* n. sp. ♀. × $1\frac{1}{2}$.

Fig. 3. *Epilampra lyrata* Hanitsch. Front view of head. × 8.

Fig. 4. *Epilampra mentawiensis* n. sp. ♂. Nat. size.

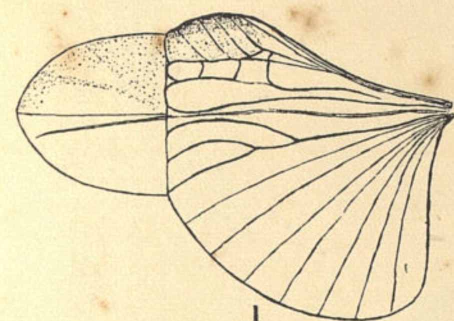
Fig. 5. *Stylopyga atrox* n. sp. ♀. × $1\frac{1}{3}$.

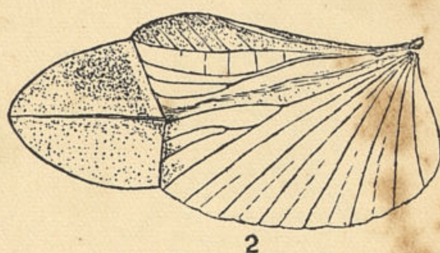
Fig. 6. *Blattella ridleyi* n. sp. ♂. Left tegmen. × 9.

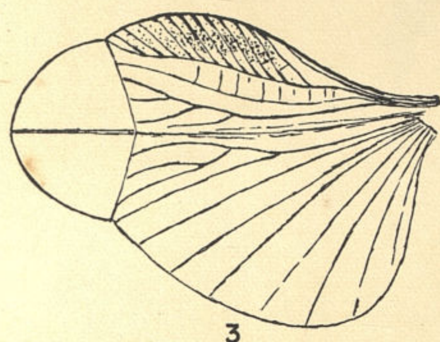
Fig. 7. *Areolaria signata* Shelford ♀. Left wing. × 7.

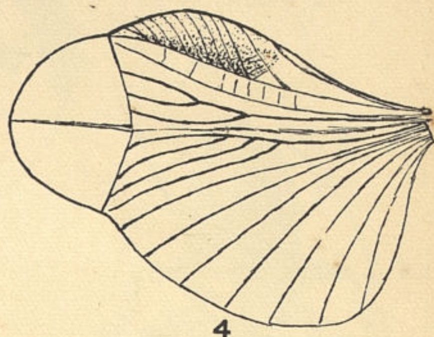
Fig. 8. *Ctenoneura aberrans* n. sp. ♀. Left tegmen. × 13.

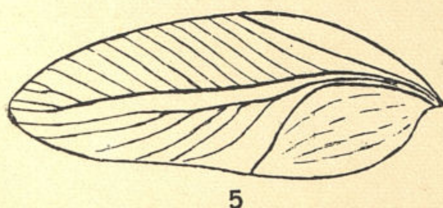
Fig. 9. *Ctenoneura aberrans* n. sp. ♀. Left wing. × 13.

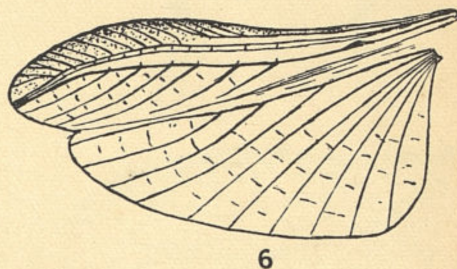

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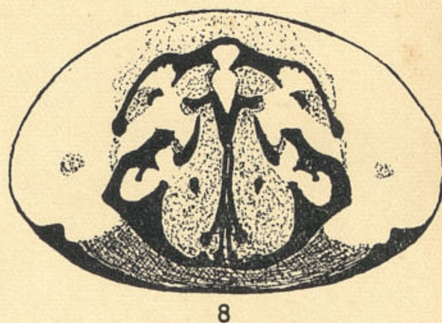

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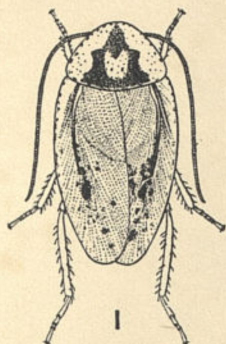

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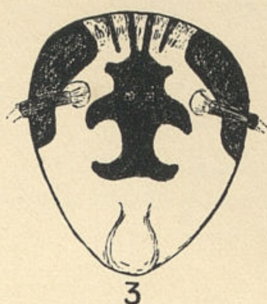

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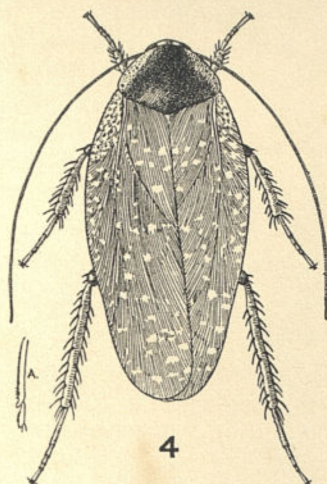

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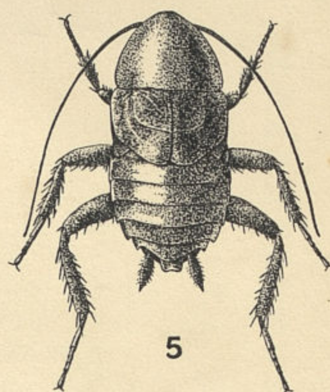
R. HANITSCH: MENTAWI BLATTIDÆ

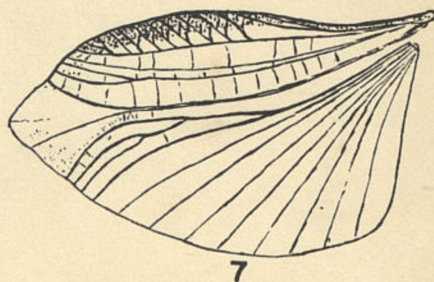


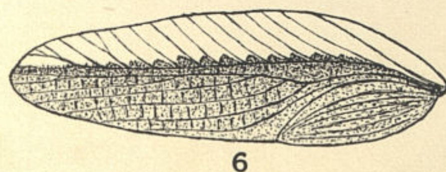


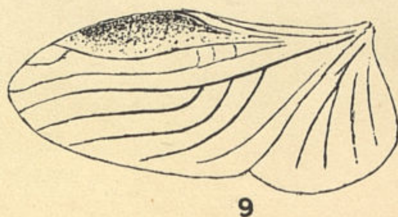


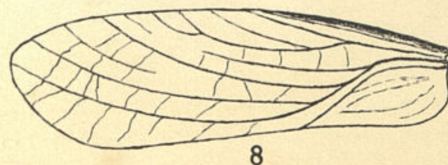












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